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DYROM II: SIMPO-I MODEL REPRESENTING ARMY UPPER ENLISTED GRADES,

(10) Pauline T. Olson

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Behavioral Science Research Laboratory

March 1969

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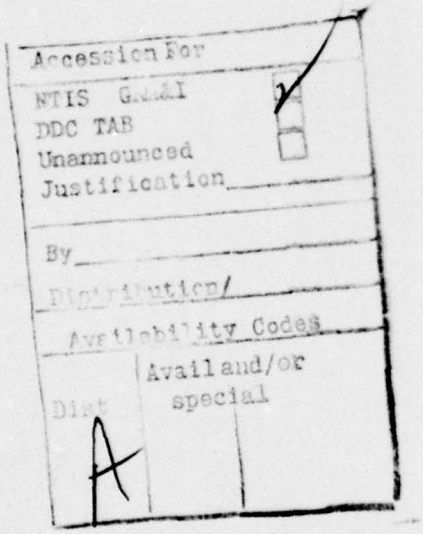

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Army Project Number
2Q065101M711

SIM d-11

Research Study 69-2

DYROM II: SIMPO-I MODEL REPRESENTING ARMY UPPER ENLISTED GRADES

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March 1969

FOREWORD

The BESRL Work Unit, "Computerized Models for the Simulation of Policies and Operations of the Personnel Subsystem--SIMPO-I," is conducted by the Statistical Research and Analysis Division. The task constitutes the initial undertaking of an operations research requirement described in the Army Master Study Program under the title, "A Simulation Model of Personnel Operations (SIMPO)" and is Project 2Q065101M711, "Army Operations and Intelligence Analysis," under the auspices of the Army Study Advisory Committee. Sub-Work Units include: a) Operational Analysis of Personnel Subsystems; b) Cataloging and Integration of Existing Manpower Models; c) Development of Measures of System Effectiveness; d) Development of Modeling Techniques; e) Design and Programming of SIMPO-I; f) Application and Evaluation of Computerized Models; and g) Problem Oriented Language for Management.

The present Research Study reports on the development and user application phases of a model of the career portion of the Army personnel system, corresponding roughly to the upper five enlisted grades. The model, DYROM II, can provide estimates of the numbers of men in various categories required month by month to meet force requirements under alternative utilization policies. The publication describes the systems simulated and the model logic. Instructions for model application, a listing of computer programs for the model, and sample input and output are provided.

J. E. UHLANER, Director
U. S. Army Behavioral Science
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-A-

DYROM II: SIMPO-I MODEL REPRESENTING ARMY UPPER ENLISTED GRADES

BRIEF

Requirement:

To develop a computerized model of the upper enlisted grades of the Army occupational personnel system by which to estimate the numbers of men required month by month to meet force requirements under established or alternative utilization policies.

Operational Characteristics of the Model:

Covers grades 5 through 9 inclusive of the Army enlisted personnel system.

Three kinds of enlisted personnel are represented: first-term enlistees, first-term inductees, and career enlistees. The career category in the present application includes all those in any enlistment subsequent to the first.

Starting inventories of persons in the system are entered in summary form and necessary details added by model logic. Projections are made in twenty-four monthly steps with assignments rotated between short-tour and all other areas combined. At each step, deterministic losses are taken, replacements are added to both noncareer and career categories, and transfers are simulated. In addition to constraints resulting from specified tour durations and limits on reassignment of individuals soon to complete their first term of service, provision is made for representation of other classifications of nondeployability by holding part of the inventory back from short-tour duty either permanently or temporarily.

Utilization of Model:

The model has been applied over 24 months, yielding information on additional personnel requirements to satisfy force commitments while maintaining acceptable rotation policies, policies which involve constraints such as stabilized tours and restricted assignments of certain force members.

DYROM II: SIMPO-I MODEL REPRESENTING ARMY UPPER ENLISTED GRADES

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DYROM II: SIMPO-I MODEL REPRESENTING THE ARMY UPPER ENLISTED GRADES

BACKGROUND

Realistic estimation of the number of soldiers required to fill vacancies, replace losses, and support desirable rotation policies and at the same time satisfy force commitments in many parts of the world is an essential--and difficult--Army management task. It may be impossible to maintain an acceptable rotation policy while meeting combat area requirements, if an estimate of needed additions is based solely on the sum of expected losses and planned system enlargement. Such manpower rotation constraints as stablized tours, information lag, and restricted assignments of certain force members give rise to requirements for extra men--requirements that become particularly critical when heavy combat quotas must be met. If additional men cannot be provided to the subsystem, then policy regarding the utilization of available men must be modified.

It is not easy to recognize an overly constrained system by examining the projection of requirements for men together with the inventory of available men. Nor is the evaluation of alternative policy modifications a straight-forward process. What is needed is some method by which system projection can be made in which movements of men from area to area, losses, and build-up of forces are simulated and shortages are observed. Manual projections are too slow and too beset by human error to be practical for use in examining the many personnel subsystems in the Army. A computerized flow model which projects the system through time is much less prone to error and saves valuable decision time.

Several dynamic flow models have been computerized by members of the U. S. Army Behavioral Science Research Laboratory SIMPO Work Unit. Three of these models have had operational use by Army and Defense staff agencies: (1) DYNAMOD, a flexible general model, which has been used extensively to model the Army Aviation system; (2) DYROM II, a revised rotation model of the career portion of MOS subsystems; and (3) ACCMOD, a model for predicting accession needs for the noncareer subsystems. All three of these models are still under active development and subject to additions or revision. It is necessary to furnish an explanation of the sequence and function of each model and to provide specific instructions for its application in order that it may be used by additional management elements. The present publication is designed to so document DYROM II.

SYSTEM MODEL

The Army enlisted system is composed of two subsystems, the noncareer subsystem made up of the men in their first term of service, and the career subsystem composed of men in later terms of enlistment.

DYROM II is a model of the career system, which in stable periods corresponds roughly to the upper five enlisted grades. 1968 was not an ordinary year, however. Rapidly expanding Army systems increased the requirements for men in the higher grades. Promotions have been unable to meet the full demands for new noncommissioned officers and skilled specialists. In an effort to supply additional leaders, especially for deployment to combat areas, schools have been established which take men directly from advanced individual training and train them to fill E5 positions. Thus, what used to be the career portion of the Army is now made up of both career and noncareer men. Consequently, a simulation model which is to be used for projecting the present state of the system to some future time must represent both elements. The DYROM II provides for system input to the noncareer categories from the training schools and to the career categories from promotional growth. In using the model, output from the training schools was used as it was programmed in the real MOS subsystem for the first six months of the simulation. During later months, the school output was compared by the model. Growth to the career categories was based on projection from records maintained on the specific MOS subsystem being examined and was input to the simulation as a system parameter.

In building the DYROM II, effort was made to represent the Army systems as realistically as possible in a simplified mass flow model. To fully depict the Army assignment system, which must evaluate suitability of individuals for jobs on the basis of various personal attributes, skill qualifications, and past service experience and integrate the individuals so categorized with overall system requirements and management considerations, a complicated entity flow model would be required. However, mass flow rotation-assignment models such as DYROM II can do a better job than a simple head-count/job-count distribution method since two assignment constraining variables are represented specifically--time in system for noncareer men and time in rotation base after short-tour assignment for both career and noncareer men. In an effort to account for other assignment inhibiting policies, DYROM II uses two nondeployability factors. For permanent nondeployables, a given portion of the personnel assets is set aside as permanently not assignable to short-tour areas. Individuals in the permanently nondeployable category spend the entire simulation period in the rotation base tour. For temporary nondeployables, a portion of the men in each category of the rotation base normally searched for assignable assets are retained in the base tour. Actual proportions used to hold back part of the men were based on surveys of the enlisted master type record (EMTR) for the particular MOS subsystem being projected.

DYROM II uses a simple summarized data base--two punched cards of batch control information and four cards of subsystem information. It

requires about one minute of Control Data 3300[1] computer time for a 24-month projection, including time for an on-line printer to output detailed summary vectors for the capabilities analyst and a ledger-sheet summary for management. Thus, reevaluations of systems are possible without difficult data preparation or excessive use of expensive computer time.

DEVELOPMENT OF THE MODEL

The portion of the Army personnel system represented in DYROM II is shown in the network flow diagram (Figure 1). Flows from the career nodes to the loss sink are not represented in the model, since the concept of net growth covers the combined effects of losses and gains. A simplified flow diagram representing the logic of the DYROM II model is shown in Figure 2, and a more detailed flow diagram in which processes are linked to sections of the computer program is shown in Figure 3. The computer program constitutes Appendix A. A sample application of the model is presented in Appendix B. Within the computer program, the tour nodes are either vectors or matrices, depending upon the career status of the personnel represented (see Figure 4).

Since only one short tour assignment was expected to be given to noncareer men, no accounting for time in base tour was made for noncareer men who returned from the short tour. Months the career man remained in rotation base were counted through a specified duration (25 months, according to present policy). The men then went into an "assignable" category.

Two casualty rates were applied to the short tour, one for permanent casualties to the Army and the other for temporary casualties--those returned to the base from short tour before expiration of their expected tour. The actual rates used were a function of the number of casualties forecast for the MOS and the number in short tour. The temporary casualties were returned to the base tour for returnees and were not considered for a second short tour.

The data input included the duration of short tour and of rotation base assignments, total expected number of patients and casualties, and rates of permanent nondeployability and permanent casualties for each group of MOS samples. For each individual sample, the basic inventory of assets, to include number in short tour, total number, and number of returnees with less than 24 months since a short-tour assignment, were input. The returnees were grouped in six-month blocks. Short-tour requirements and TOE/TD authorizations were also input. Rates were input

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[1] The commercial designation of the computer is given to provide precise information concerning the model developed. Use of the trade name does not constitute indorsement by BESRL or by the Army.

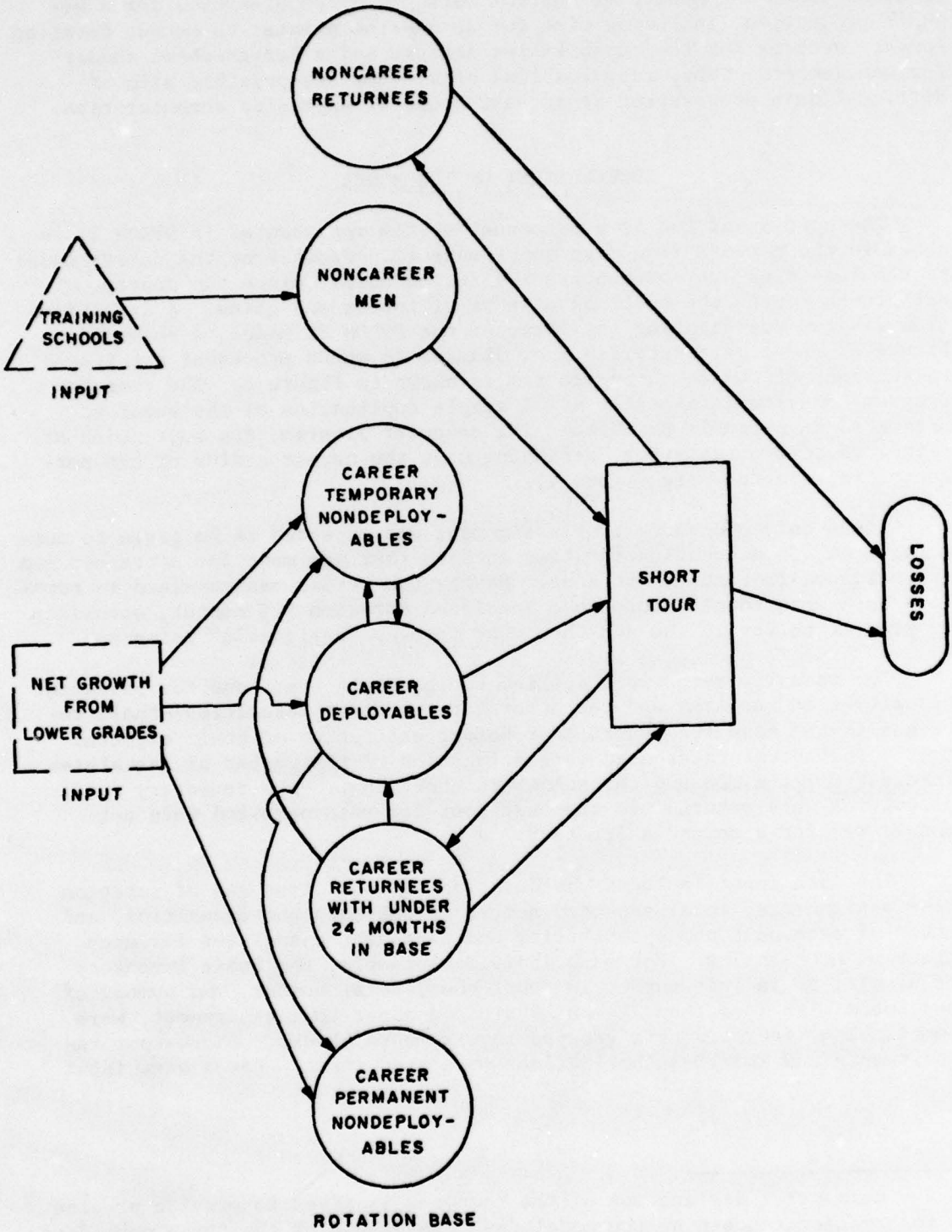

Figure 1. States and flows represented in DYROM II

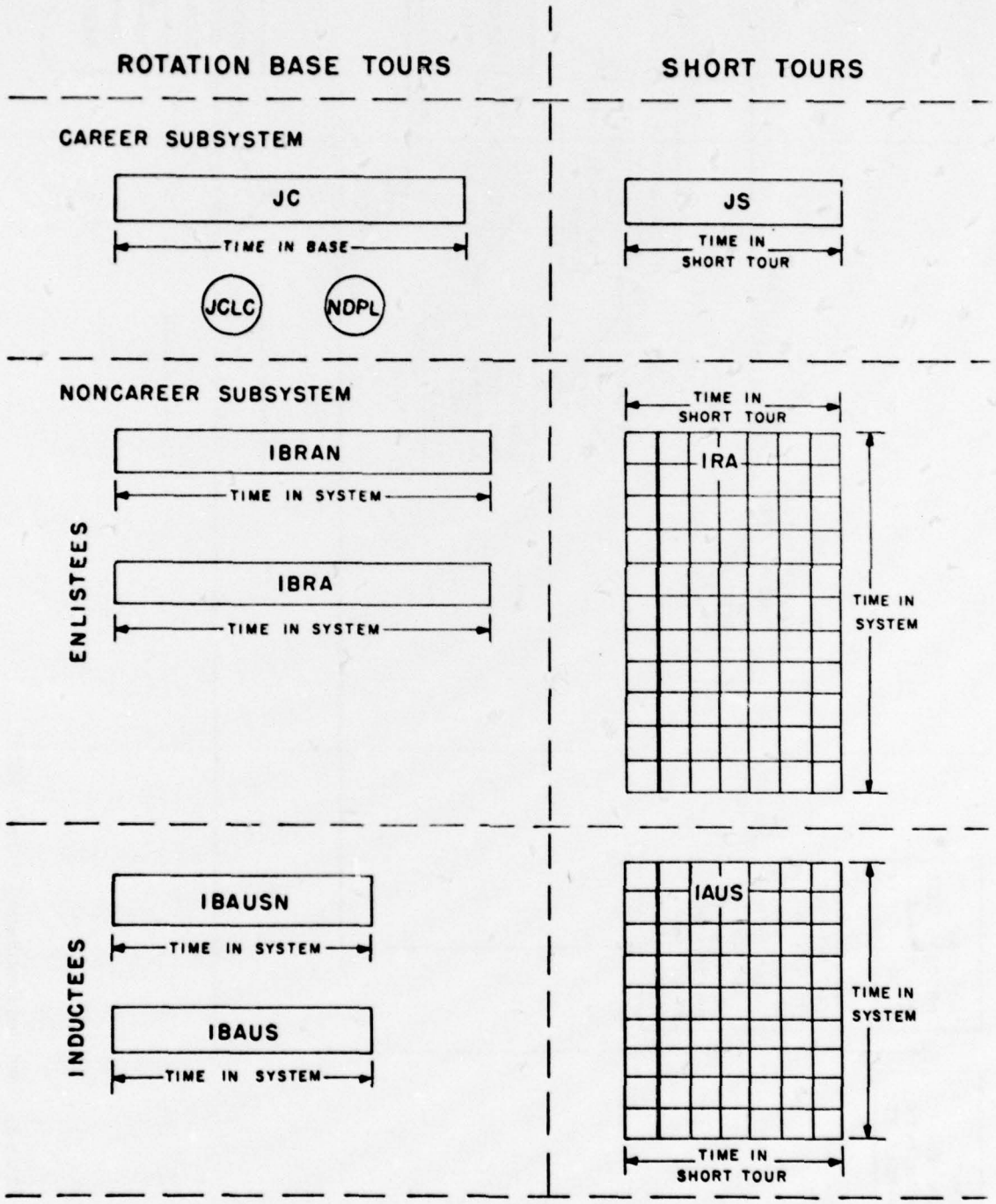

Figure 2. Tour vectors and matrices used in DYROM II.

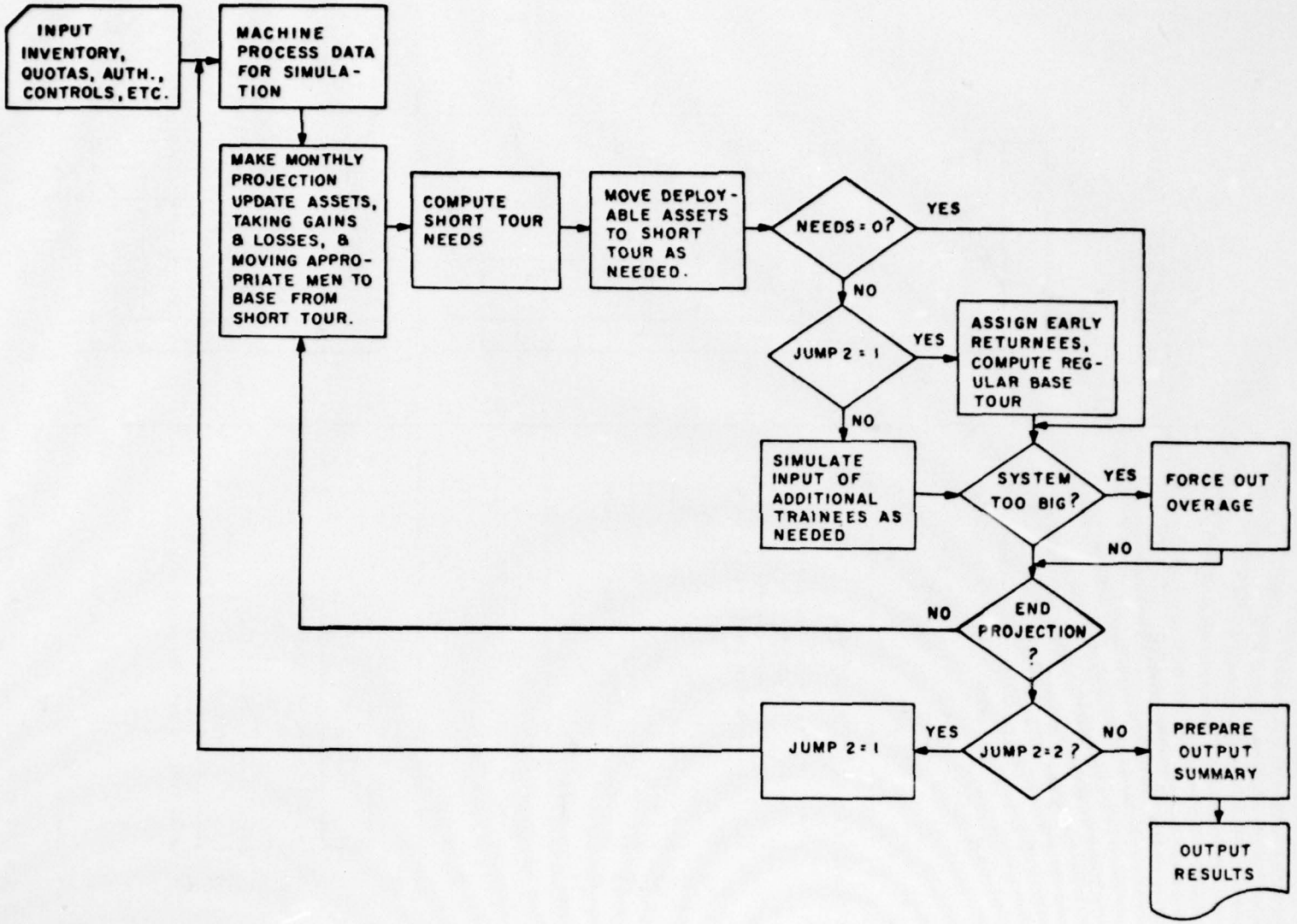

Figure 3. Simplified flow diagram of the DYROM II

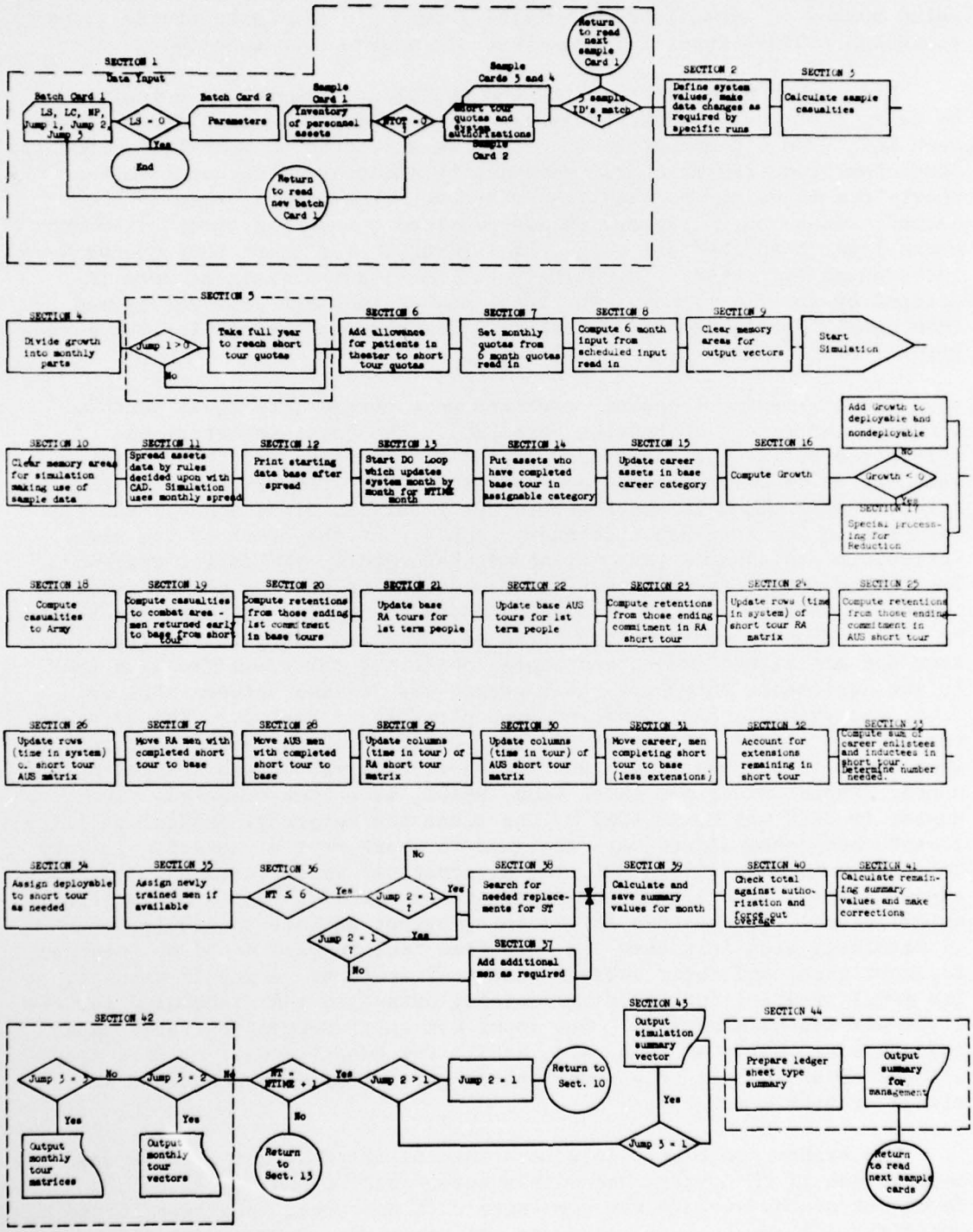

Figure 4. DYROM II Flow Chart

for each sample for temporary nondeployability, casualties, retention, proportion of inductees (as opposed to enlistees), and transients-patients-students (TPS). The duration of the MOS skill development course, estimated number of extensions, estimated growth (in six-month blocks), and scheduled trainee input for the first six months were supplied.

The number of casualties for the individual sample was calculated by using the total casualty estimate multiplied by the sample rate for each MOS. The six-month growth totals were changed to monthly increments. Short tour requirement quotas were set by linearly advancing from the short-tour inventory to the first six-month requirement, then to the second, and so on. (The option was provided to set the first six-month quota lower than the full value, if desired.) The short tour quotas were incremented by patients in theater, and total authorizations were increased by the TPS factor. The total number in short tour was spread into equal monthly blocks of vector JS, career short tour, for the duration of short tour.

The six-month blocks of returnees were spread into equal monthly parts in the career sustaining base (JC). The total inventory was multiplied by the permanent nondeployability factor, and these assets were set aside among the nondeployables (NDPL). The remainder of the assets (total minus in short tour minus returnees minus nondeployables) were put in the assignable category (JCLC). At the start of the simulation, it was assumed that all assets belonged to the career system. The sample inventory which had too few assets to provide the required number in the nondeployable category moved those from the returnee blocks to NDPL. Monthly updating consisted of taking casualty losses from short tour and adding net growth and those completing the specified base tour to the assignable category. (Net growth was divided between NDPL and JCLC, according to the permanent nondeployability factor.) The returnee vector was updated. Those in the last position of the short-tour vector were moved to the base tour, and the short-tour vector was stepped up one month. Replacements for short tour, NEEDS, were then computed. The number in JCLC was multiplied by one minus the temporary nondeployability factor, and these assets were assigned to short tour as needed. If more men were needed to fill NEEDS, two alternatives were available: 1) Additional trained assets could be input--these would be displayed in results as additional requirements for training output at this particular month. 2) Returnees with less than the specified tour in base would be returned to short tour, and their average base tour would be output in results. The model provided for limiting training output to that scheduled for the first six months simulated. New input was split between enlistees and inductees as indicated by a rate, RAUS. The two alternatives were accomplished under control of a model option which caused the model to do either or both simulations.

New system and tour totals were then calculated, and a check was made to see if the system was within authorized strength. If not, a force-out of the overage was simulated with noncareer returnees forced out first and then career returnees, if required. Totals were then corrected. This updating step was repeated for twenty-four months.

At the end of the simulation, monthly values were combined into six-month blocks to give appropriate information for the management-oriented summary sheet. The summary report presents the simulated outcome from alternative solutions to the constrained system in terms of training output, grade substitution, and numbers returned to short tour after little time in base. No attempt is made to estimate results of the separate management policies incorporated in the simulation.

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APPENDIX A. THE COMPUTER PROGRAM

The program is described section by section in the following pages. The first part shows dimensioned variables used in the program by computer listing. Definitions follow.

DIMENSION STATEMENTS
(Computer Listing of Variables Used in the Program)

```
                                        31/32/33ØØ FORTRAN (3.1)/MSOS   30/04/69

      PROGRAM X748
C     MODB        OLSON
C     DYROM 1%
C DYNAMIC ROTATION MODEL OF THE 3 DIGIT MOS SYSTEM FOR GRADES E-5 AND UP
C PROGRAMMED FEBRUARY, 1968 AS A PART OF USA BEHAVIORAL SCIENCE RESEARCH LAB
C TASK SIMPO, SIMULATION OF PERSONNEL OPERATIONS.
      DIMENSION IRA(36,18),IAUS(24,18),JS(18),IBRA(36),IBAUS(24),IBRAN(3
     16),IBAUSN(24),JC(30),NQUOT(4),MQUOT(24),IGROW(24),KAS(24),KAS2(24)
     2,INPT(4),NEW(24),IRET(24),XTR(24),NEEW(24),IAUSMT(24),IRAMT(36),MR
     3A(18),MAUS(18),ICARN(24),IETS(24),NDPLP(24)
      DIMENSION MRET(24),JNEED(24),INEED(24),IGRAND(24),ICAR(24),NDPLT(2
     14),INST(24),ICOMP(24),IFOUT(24),ISTACT(24),NTOTCR(24),IOVRLC(24)
      DIMENSION L5(5),L6(5),X36(5),L10(5),IAUTH(4),IQUOT(4),JBASE(5)
      DIMENSION L14(4),L12(4),L9(4),L22(5),L20(4),L28(4),L24(4),L30(4),
     1L25(5),L26(4),L27(5),L36(5),L37(4),L38(4),NC(5),L11(4),L21(4)
      DIMENSION L17(4),JAUTH(4),L33(4),A(5),B(4),IB(4),IGR06(4)
```

DEFINITIONS

IAUSMT(24), row totals for matrix IAUS

IRAMT(36), row totals for matrix IRA

MRA(18), column totals for matrix IRA

MAUS(18), column totals for matrix IAUS

ICARN(24), monthly gains for career system from reenlistment of school-trained NCOs

IETS(24), number of noncareer ending commitment each month

NDPLP(24), number permanently nondeployable

MRET(24), returnees completing short tour and going to base tour

JNEED(24), number actually sent to short tour during updating step

INEED(24), number needed by short tour to meet monthly quota

IGRAND(24), total number in system

ICAR(24), number of career returnees in base with under LC months

NDPLT(24), number of assignables held back for reasons of temporary nondeployability

INST(24), number in short tour before replacements are added

ICOMP(24), number in base with completed base tour

IFOUT(24), number forced out to maintain system under authorized strength

ISTACT(24), total number on hand in short tour

NTOTCR(24), total number of career men in system

L5(5), transients, patients, and students (line 5 of summary for management)

L6(5), authorized strength

X36(5), percent substitution in line 36 of management summary

L10(5), replacements to eliminate substitution in short tour

LAUTH(4), authorized strength, including TPS

IQUOT(4), short tour requirements; read in without patient allowance

JBASE(5), authorization for base structure.

L14(4), deployment requirements

IRA(24, 18), a matrix of enlistee noncareer men assigned to short tour; rows represent time in the system, and columns represent time in short tour

IAUS(24, 18), a matrix of inductee noncareer men assigned to short tour

JS(18), a vector of career men assigned to short tour; vector position represents time in short tour

IBRA(6), a vector of enlistee noncareer men assigned to base after short tour; vector position represents time in system

IBAUS(24), a vector of inductee noncareer men assigned to base after short tour

IBRAN(36), a vector of enlistee noncareer men assigned to base prior to any short-tour service; vector position is time in system

IBAUSN(24), a vector of inductee noncareer men assigned to base prior to any short-tour service

JC(30), a vector of career men assigned to base; position represents time in base

NQUOT(4), short-tour quotas for 6, 12, 18, and 24 months in the future

MQUOT(24), monthly short-tour quotas

IGROW(24), monthly growth

KAS(24), monthly casualties to the Army

KAS2(24), monthly casualties to the short tour only

INPT(4), scheduled input for six-month periods

NEW(24), scheduled input for each month

IRET(24), number of early returnees required by short tour each month

XTR(24), average base tour for the early returnees

NEEW(24), additional monthly input required to eliminate early returnees

L12(4), scheduled new deployment

L9(4), rotation replacements

L22(5), total in system without additional replacements

L20(4), losses at end of obligated service

L28(4), shortage in system (required additional trainee input)

L24(4), number in short tour

L30(4), number forced out to stay under authorized strength

L25(5), returnees with less than 24 months in base

L26(4), nondeployables other than returnees or those in short tour

L27(5), total number accounted for by assignment constraints

L36(5), number of substitutions required if no additional input is added and no men are sent back early

L37(4), number of returnees required if no additional input and no substitution

L38(4), average base tour of returnees

NC(5), assets in base with 1-6, 6-12, 12-18, 18-24, and over 24 months

L11(4), replacements required because of casualties from the short tour

L21(4), casualty losses from the system

L17(4), beginning period assets

JAUTH(4), authorized strength without TPS

L33(4), additional school output required

A(5), vector of dates for line 1 of output summary

B(4), vector of column headings, line 7 of output summary

IB(4), vector of column headings, line 8 of output summary

IGRO6(4), expected growth six-month block

MODEL LOGIC

SECTION I

```
C SECTION 1
C  INPUT DATA
      READ 309,(A(I),I=1,5),(B(J),J=1,4),(B(K),K=1,4)
  120 READ 11,LS,LC,NP,JUMP1,JUMP2,JUMP3
      IF(LS)117,116,117
  117 CONTINUE
      READ 12,IKSTOT,IPATOT,RPNDPL,RKKAS
      NTIME=6*NP
  101 READ 16, SAMP,NST,(NC(I),I=1,4),NTOT
      IF(NTOT)120,120,118
  118 CONTINUE
      READ 16,SAMP1,IQUOTN,(IQUOT(I),I=1,4),IAUTHN,(JAUTH(J),J=1,4)
      READ 17,SAMP2,RTNDPL,RCAS,RETNT1,RETNT2,RAUS,RTPS,LNCO
      READ 16,SAMP3,IEXT,(IGRO6(I),I=1,4),(NEW(J),J=1,6)
      IF(SAMP-SAMP1)3000,3001,3000
 3001 CONTINUE
      IF(SAMP-SAMP2)3000,3002,3000
 3000 PRINT 3003,SAMP,SAMP1,SAMP2
      GO TO 101
 3002 CONTINUE
```

In Section 1, seven cards are read: (1) a summary sheet vector of dates; (2) and (3) two batch cards; and (4) through (7) sample data cards.

Card 1: contains dates for lines 1, 7, and 8 of the summary sheet output

Card 2:

LS = duration of the short tour in months

LC = duration of the base tour in months

NP = number of six-month periods to be simulated. Limited to 4 by the length of the output vectors but dimensions could be changed and a longer projection made.

JUMP1 = option to postpone going to full quotas in the short-tour area. Useful in the event of rapid buildup. If JUMP1 = 1, full buildup is delayed until one year later.

JUMP2 = option on form of simulation. If JUMP2 = 0, one 24-simulation run computes additional input needed. If JUMP2 = 1, number of returnees and average base tour are computed. If JUMP2 = 2, both simulations are made and alternatives are presented for management.

JUMP3 = print control. If 0, only summary for management is printed; if 1, management summary and vectors for capabilities analyst; if 2 summary, analyst's vectors and data summary vectors for each simulated month; if 3, management summary, analyst's vectors, data vectors, and data matrices.

Format for this card is (6I5)

In card 3:

IKSTOT = total number of casualties expected each month during simulation

IPATOT = total number of patients for whom allowance is made in number to be in short tour

RPNDPL = rate of temporary nondeployability

RKKAS = rate of permanent casualties

Format for card 2 was (2I5, 2F5.3)

NTIME = 6*NP This statement defines the length of the simulation in months

In card 4--or Sample card 1 (Statement number 101):

SAMP = sample identification code

NST = number of men in short tour

NC(I), I = 1, 4 = number of men in base with 0-6, 6-12, 12-18 or 18-24 months

NTOT = total number of men in the MOS system

These quantities are in format (5XA5,6I6)

The next statement provides for reading a new set of batch cards if a blank has been put behind the last set of sample cards in a given batch.

In Sample card 2:

SAMP1 = sample identification code

IQUOTN = short tour requirements at time 0

IQUOT(I), I = 1, 4 = short tour quotas for 6-month intervals in the future

IAUTHN = Authorized strength at time 0

JAUTH(I), I = 1, 4 = Authorized strength for 6-month intervals in the future

Format is (5XA5, 10I6)

Sample card 3:

SAMP2 = Sample identification

RTNDPL = rate of temporary nondeployability. This factor combined all groups not deployable to short tour except those with too little time since completion of a short tour and those nearing release from their first enlistment. The actual factor used was obtained from a DATCOM report on number nondeployable as of a given date. This report is made every three months.

RCAS = casualty rate, proportion of IKSTOT which belongs to the sample being considered

RETNT1 = retention for inductees

RETNT2 = retention rate for enlistees

RAUS = proportion of inductees in new training output

RTPS = rate of transients, patients and students

LNCO = duration of the skill development school leading to grade E5

Format (5XA5, 6F5.3, I5)

Sample card 4:

SAMP3 = sample identification

IEXT = number of 6-month extensions per 6 months, or number of extended man-months per month

IGRO6(I) = expected growth for each of the four 6-month periods in the 24-month projection. I equals 1 to 4.

NEW(J) = scheduled trainee output for first 6 months. J equals 1 to 6.

Format (5XA5, 11I6)

SECTION 2

```
C SECTION 2
C  ADJUSTMENT OF PARAMETERS
      RTNDPL=RTNDPL**.166666667
      JUMP2=IUMP2
      RPAT=RCAS
      LNCO=(LNCO+1)/4
      LRA=31-LNCO
      LAUS=19-LNCO
```

In Section 2, corrections specific to the set of simulations are made. For example, LNCO was punched in the data cards in weeks. Since the basic time unit for DYROM II is a month, the program changed LNCO to months with the arbitrary decision that 3 weeks should be called a month, while 2 weeks should be disregarded. LRA and LAUS are the effective length of the enlistee and inductee commitments.

SECTION 3

```
C SECTION 3
C  CALCULATION OF CASUALTIES FOR SAMPLE
       Y=IKSTOT
       X=Y*RCAS+.5
       IX=X
       Y=RKKAS*IX+.5
       NKAS=Y
       NKAS2=IX-NKAS
```

In Section 3, RCAS, the MOS casualty rate, is multiplied by IKSTOT, total casualties expected, to obtain number of casualties, IX, for the sample. RKKAS times this number gives the number of killed casualties, NKAS, and IX-NKAS gives the number of temporary casualties, NKAS2.

SECTION 4

```
C SECTION 4
C  DIVIDE SIX MONTH GROWTH INTO MONTHLY PARTS
       DO 15 I=1,4
       J=I*6
       K=J-5
       Y=IGRO6(I)
       XN=Y/6.
       X=0
       N=ITEM=0
       DO 131 II=K,J
       X=X+XN-N
       IGROW(II)=X
       N=X
  131  ITEM=ITEM+N
   15  IGROW(J)=IGROW(J)+IGRO6(I)-ITEM
```

In Section 4, the six-month expected growth is divided out into monthly portions.

SECTION 5

```
C SECTION 5
C  GO TO 100 PERCENT QUOTAS IN SIX MONTHS OR ONE YEAR
       IF(JUMP1)30,30,31
   31  NQUOT(1)=(NST+IQUOT(1))/2
       DO 284 I=2,4
  284  NQUOT(I)=IQUOT(I)
       GO TO 282
   30  DO 283 I=1,4
  283  NQUOT(I)=IQUOT(I)
  282  CONTINUE
```

In Section 5, if JUMP1 is greater than zero, the short-tour quota for month 6 is reset to halfway between the number in short tour at time 0 and the proposed value of IQUOT(1) which had been read in Sample card 2.

SECTION 6

```
C SECTION 6
C  INCREASE QUOTAS FOR PATIENTS IN THEATER
       X=RPAT*IPATOT+.5
       NPAT=X
       DO 32 I=1,NP
       IAUTH(I)=JAUTH(I)
       Y=IAUTH(I)
       IX=RTPS*Y+.5
       IAUTH(I)=IAUTH(I)+IX
    32 NQUOT(I)=NQUOT(I)+NPAT
```

Section 6 provides for adding a patients-in-theater allowance to quotas read in Sample card 2 and for increasing authorized strength for transients, patients, and students.

SECTION 7

```
C SECTION 7
C  SET MONTHLY QUOTAS FROM SIX MONTHS QUOTAS
       ITEM=(NQUOT(1)-NST)/6
       MQUOT(1)=NST+ITEM
       DO 33 I=2,5
       J=I-1
    33 MQUOT(I)=MQUOT(J)+ITEM
       MQUOT(6)=NQUOT(1)
       DO 34 I=2,NP
       II=I-1
       J=6*I
       MQUOT(J)=NQUOT(I)
       ITEM=(NQUOT(I)-NQUOT(II))/6
       J5=J-5
       J1=J-1
       DO 34 K=J5,J1
       K1=K-1
    34 MQUOT(K)=MQUOT(K1)+ITEM
```

Section 7 sets monthly quotas from the six-month quotas provided from computations in Section 6. Increases or decreases are linear between the successive six-month quotas available. NST is used as the quota for time 0.

SECTION 8

```
C SECTION 8
C  COMPUTE SUM OF SIX MONTHS SCHEDULED INPUT
      K=NP*6
      DO 35 I=7,K
   35 NEW(I)=0
      INPT(1)=0
      DO 36 I=1,6
   36 INPT(1)=INPT(1)+NEW(I)
      DO 38 I=2,NP
   38 INPT(I)=0
```

In Section 8, the scheduled trainee input for the first six months is summed and stored in INPT(1), since the amount of subsequent trainee input is a product of the simulation INPT(I) for I = 2 to P is set equal to zero.

SECTION 9

```
C SECTION 9
C  ZERO OUTPUT VECTORS
      DO 205 I=1,24
      INEED(I)=IGRAND(I)=ICAR(I)=NDPLT(I)=INST(I)=ICOMP(I)=KAS(I)=0
      IOVRLC(I)=0
      ISTACT(I)=0
      JNEED(I)=0
      IFOUT(I)=0
      KAS2(I)=NTOTCR(I)=0
  205 NEEW(I)=ICARN(I)=IETS(I)=NDPLP(I)=0
  103 CONTINUE
```

In Section 9, vectors used to store results of the simulations for the sample are cleared.

SECTION 10

```
C SECTION 10
C  ZERO THE MONTHLY TOUR VECTORS AND MATRICES
      DO 2 I=1,36
      IBRAN(I)=IBRA(I)=IRAMT(I)=0
      DO 2 J=1,LS
    2 IRA(I,J)=0
      DO 3 I=1,24
      IBAUSN(I)=IBAUS(I)=IAUSMT(I)=0
      DO 3 J=1,LS
    3 IAUS(I,J)=0
      DO 4 I=1,24
      IRET(I)=0
```

```
    4 XTR(I)=LC
      DO 6 I=1,30
    6 JC(I)=0
      DO 7 I=1,LS
    7 JS(I)=MRA(I)=MAUS(I)=0
```

Section 10 clears the areas used to store assets information In the steps DO 4 through statement number 4, the value of the vectors used to compute returnees and average base tour are set. In the event no returnees are required, the average base tour is set equal to LC months. If some returnees are required, XTR is reset to the calculated value (see Section 38).

SECTION 11

```
C SECTION 11
C  PREPARE DETAILED DATA BASE FROM INVENTORY SUPPLIED
       Y=NST
       X=0
       ITEM=N=0
       XN=Y/LS
       DO 20 I=1,LS
       X=X+XN-N
       JS(I)=X
       N=X
   20  ITEM=ITEM+N
       JS(1)=JS(1)+NST-ITEM
       ITEM=NST
       DO 22 I=1,4
   22  ITEM=ITEM+NC(I)
       JCLC=NTOT-ITEM
       IX=(RPNDPL*NTOT+.5)
       IF(JCLC-IX)23,24,24
   24  NDPL=IX
       JCLC=JCLC-IX
       IX=0
       GO TO 29
   23  NDPL=JCLC
       IX=IX-JCLC
       JCLC=0
       DO 25 I=1,4
       J=5-I
       IF(NC(J)-IX)26,27,27
   27  NC(J)=NC(J)-IX
       NDPL=NDPL+IX
       IX=0
       GO TO 29
   26  NDPL=NDPL+NC(J)
       IX=IX-NC(J)
       NC(J)=0
   25  CONTINUE
       IF(IX)29,29,28
```

```
 28 PRINT 91
 91 FORMAT(60H0 MARGIN FOR NONDEPLOYABLE IN THIS SAMPLE IS NOT
    SUFFICIENT  )
    GO TO 112
 29 CONTINUE
    JTOT=NTOT
    DO 95 I=1,4
    XC=NC(I)
    XN=XC/6.
    J=I*6
    K=J-5
    ITEM=0
    N=0
    X=0
    DO 96 II=K,J
    X=X+XN-N
    JC(II)=X
    N=X
 96 ITEM=ITEM+X
 95 JC(K)=JC(K)+NC(I)-ITEM
    IF(JUMP3-1)177,177,178
```

Section 11 spreads the assets information read in Sample Card I into the short tour and the career base tour and divides the remainder of the system inventory between JCLC, the assignable category for career men who have had sufficient time in base so that they are eligible for a short tour, and NDPL, the category for those permanently nondeployable to the short tour.

SECTION 12

```
C SECTION 12
C  PRINT STARTING DATA BASE
 178 CONTINUE
     PRINT 311
     PRINT 301,(MQUOT(I),I=1,NTIME)
     PRINT 306
     PRINT 301,(JC(I),I=1,24)
     PRINT 316
     PRINT 301,(JS(I),I=1,12)
     PRINT 320,NDPL
     PRINT 331,JCLC
     PRINT 332,JTOT
 177 CONTINUE
     JST=NST
```

In Section 12, if JUMP3 > 1, the starting data base and short tour quotas are printed. The number in short tour, JST, is then set equal to NST, the starting short tour inventory.

SECTION 13

```
C SECTION 13
C  START LOOP WHICH PROJECTS SYSTEM ONE MONTH AT A TIME
      DO 100 NT=1,NTIME
      ITEM=0
```

Section 13 marks the beginning of the monthly updating cycle. NTIME is equal to NP*6.

SECTION 14

```
C SECTION 14
C  PUT THOSE WITH COMPLETED BASE TOUR IN ASSIGNABLE CATEGORY
      DO 40 I=LC,30
      ITEM=ITEM+JC(I)
   40 JC(I)=0
      JCLC=JCLC+ITEM
```

Section 14 moves assignable men from the career base tour in JCLC, the assignable pool.

SECTION 15

```
C SECTION 15
C  UPDATE CAREER IN BASE
      II=LC-1
      LC1=LC+1
      DO 41 I=1,II
      J=LC1-I
      K=J-1
   41 JC(J)=JC(K)
      JC(1)=0
```

Section 15 moves assets forward a month in the base career tour. The cell for the first month is cleared.

SECTION 16

```
C SECTION 16
C  GROWTH ADDED TO ASSETS
      IY=IGROW(NT)
      IF(IY)501,502,502
  502 X=RPNDPL*IY+.5
      IX=X
      NDPL=NDPL+IX
      JCLC=JCLC+IY-IX
      GO TO 510
```

Section 16, after checking to see if growth is positive, adds growth to the assignable pool and the permanently nondeployable category.

SECTION 17

```
C SECTION 17
C  PROCESSING FOR NEGATIVE GROWTH
  501 IF(JCLC+NDPL+IY)503,503,513
  503 IY=IY+JCLC+NDPL
      JCLC=0
      NDPL=0
      DO 504 I=1,LC
      J=LC1-I
      IF(JC(J)+IY)505,506,506
  506 JC(J)=JC(J)+IY
      IY=0
      GO TO 510
  505 IY=IY+JC(J)
  504 JC(J)=0
      IF(IY)508,510,508
  508 PRINT 509,IY
      GO TO 510
  513 Y=JCLC
      X=NDPL
      RD=X/(X+Y)
      IX=RD*IY+.5
      IY=IY-IX
      IF(NDPL+IX)511,512,512
  512 NDPL=NDPL+IX
      IX=0
      GO TO 514
  511 IX=IX+NDPL
      NDPL=0
  514 IY=IY+IX
      JCLC=JCLC+IY
      IY=0
  510 CONTINUE
```

In Section 17, special processing is provided to insure correct handling of negative growth.

```
C SECTION 18
C  COMPUTE CASUALTIES TO ARMY
      X=NKAS
      Y=JST
      R=X/Y
      ITEM=0
      X=0
      DO 482 I=1,LS
      Y=JS(I)
      X=R*Y+X
      IX=X
      X=X-IX
      ITEM=ITEM+IX
  482 JS(I)=JS(I)-IX
      IKAS = ITEM
      DO 480 I=1,LRA
      DO 480 J=1,LS
      Y=IRA(I,J)
      X=R*Y+X
      IX=X
      X=X-IX
      ITEM=ITEM+IX
  480 IRA(I,J)=IRA(I,J)-IX
      DO 481 I=1,LAUS
      DO 481 J=1,LS
      Y=IAUS(I,J)
      X=R*Y+X
      IX=X
      X=X-IX
      ITEM=ITEM+IX
  481 IAUS(I,J)=IAUS(I,J)-IX
      IF(JUMP2-1)206,207,206
  206 CONTINUE
      KAS(NT)=ITEM
  207 CONTINUE
```

In Section 18, the ratio of casualties to the number in short tour is computed and multiplied by each data cell in the career and noncareer short tours. The total casualties for all men are retained in a separate output vector.

SECTION 19

```
C SECTION 19
C  COMPUTE CASUALTIES TO COMBAT AREA
      X=NKAS2
      Y=JST-ITEM
      R=X/Y
      ITEM=0
      X=0
      DO 490 I=1,LRA
      DO 490 J=1,LS
      Y=IRA(I,J)
      X=R*Y+X
      IX=X
      X=X-IX
      ITEM=ITEM+IX
      IBRA(I)=IBRA(I)+IX
  490 IRA(I,J)=IRA(I,J)-IX
      DO 491 I=1,LAUS
      DO 491 J=1,LS
      Y=IAUS(I,J)
      X=R*Y+X
      IX=X
      X=X-IX
      ITEM=ITEM+IX
      IBAUS(I)=IBAUS(I)+IX
  491 IAUS(I,J)=IAUS(I,J)-IX
      DO 492 I=1,LS
      Y=JS(I)
      X=R*Y+X
      IX=X
      X=X-IX
      ITEM=ITEM+IX
      JC(1)=JC(1)+IX
  492 JS(I)=JS(I)-IX
      IF(JUMP2-1)210,211,210
  210 CONTINUE
      KAS2(NT)=ITEM
  211 CONTINUE
```

Temporary casualties are computed in Section 19. These are losses to the combat area. Men are returned to base tours before the time they are scheduled to complete their stay in short tour.

SECTION 20

```
C SECTION 20
C  COMPUTE RETENTIONS FROM THOSE COMPLETING COMMITMENT
      II=LAUS-1
      II2=LAUS+1
      NCAR1=RETNT1*IBAUS(LAUS)
      NCAR3=RETNT1*IBAUSN(LAUS)
      IF(LAUS-LC)493,494,494
  493 IX=RPNDPL*(NCAR1+NCAR3)
      NDPL=NDPL+IX
      JC(II2)=JC(II2)+NCAR1+NCAR3-IX
      GO TO 495
  494 IX=RPNDPL*NCAR1
      IY=RPNDPL*NCAR3
      NDPL=NDPL+IX+IY
      JCLC=JCLC+NCAR1-IX+NCAR3-IY
  495 JTOT=JTOT+NCAR1+NCAR3
      II=LRA-1
      II2=LRA+1
      NCAR2=RETNT2*IBRA(LRA)
      NCAR4=RETNT2*IBRAN(LRA)
      IX=RPNDPL*NCAR2
      IY=RPNDPL*NCAR4
      IF(LRA-LC)497,498,498
  497 JC(II2)=JC(II2)+NCAR2+NCAR4-IX-IY
      NDPL=NDPL+IX+IY
      GO TO 496
  498 JCLC=JCLC+NCAR2-IX+NCAR4-IY
      NDPL=NDPL+IX+IY
  496 JTOT=JTOT+NCAR2+NCAR4
      KTEM=IBRAN(LRA)+IBRA(LRA)+IBAUSN(LAUS)+IBAUS(LAUS)-
      NCAR1-NCAR2-NCAR3-NCAR4
```

In Section 20, reenlistments are provided for with all retentions from the last month of the noncareer base tours being moved to appropriate points in the career base tour. A record is made of the number lost by failure to reenlist.

SECTION 21

```
C SECTION 21
C  UPDATE IBRA AND IBRAN
      DO 46 I=1,II
      J=II2-I
      K=J-1
      IBRAN(J)=IBRAN(K)
   46 IBRA(J)=IBRA(K)
```

In Section 21, the base RA noncareer tours are updated.

SECTION 22

```
C SECTION 22
C  UPDATE IBAUS AND IBAUSN
       II=LAUS-1
       II2=LAUS+1
       DO 48 I=1,II
       J=II2-I
       K=J-1
       IBAUS(J)=IBAUS(K)
   48  IBAUSN(J)=IBAUSN(K)
```

In Section 22, the base AUS tours are updated.

```
C SECTION 22.1
C  INPUT NEW MEN AS SCHEDULED
       X=NEW(NT)
       IX=X*RAUS
       IY=X*RAUS*RPNDPL
       IX=IX-IY
       IBAUS(1)=IY
       IBAUSN(1)=IX
       IX=NEW(NT)-IX-IY
       IY=RPNDPL*IX
       IX=IX-IY
       IBRA(1)=IY
       IBRAN(1)=IX
```

In Section 22.1, the scheduled new trainee output is added to the deployable and nondeployable RA and AUS tours.

SECTION 23

```
C SECTION 23
C  COMPUTE RETENTIONS FROM THOSE COMPLETING COMMITMENT
C  WHILE IN ST IRA
       NCAR=0
       ITEM=0
       DO 50 I=1,LS
       JS(I)=JS(I)+IRA(LRA,I)*RETNT1
       ITEM=ITEM+IRA(LRA,I)
   50  NCAR=NCAR+IRA(LRA,I)*RETNT1
       KTEM=KTEM+ITEM-NCAR
```

In Section 23, retentions are computed for men leaving the noncareer system while in a short tour. Losses are added to KTEM, which was started in Section 20.

SECTION 24

```
C SECTION 24
C  UPDATE ROWS OF IRA
      II=LRA-1
      II2=LRA+1
      DO 522 M=1,LS
      DO 521 I=1,II
      J=II2-I
      K=J-1
  521 IRA(J,M)=IRA(K,M)
  522 IRA(1,M)=0
```

Section 24 moves RA short tour assets up one row and clears row 1.

SECTION 25

```
C SECTION 25
C  COMPUTE RETENTIONS FROM THOSE COMPLETING COMMITMENT
C  WHILE IN ST IAUS
      NCAR=0
      ITEM=0
      DO 54 I=1,LS
      JS(I)=JS(I)+IAUS(LAUS,I)*RETNT2
      ITEM=ITEM+IAUS(LAUS,I)
   54 NCAR=NCAR+IAUS(LAUS,I)*RETNT2
      KTEM=KTEM+ITEM-NCAR
      IF(JUMP2-1)212,213,212
  212 CONTINUE
      IETS(NT)=KTEM
  213 CONTINUE
```

In Section 25, retentions are computed for the AUS short tour and losses are added to KTEM. When the simulation is one which adds extra trainee input, the value of KTEM is stored in IETS(NT).

SECTION 26

```
C SECTION 26
C  UPDATE ROWS OF IAUS
      II=LAUS-1
      II2=LAUS+1
      DO 562 M=1,LS
      DO 561 I=1,II
      J=II2-I
      K=J-1
  561 IAUS(J,M)=IAUS(K,M)
  562 IAUS(1,M)=0
```

Section 26 moves AUS short tour assets up one row and clears row 1.

SECTION 27

```
C SECTION 27
C  MOVE IRA MEN COMPLETING SHORT TOUR TO BASE
      LS1=LS+1
      DO 59 I=LS1,LRA
   59 IBRA(I)=IRA(I,LS)+IBRA(I)
```

Section 27 moves RA men completing short tour to base.

SECTION 28

```
C SECTION 28
C  MOVE IAUS MEN COMPLETING SHORT TOUR TO BASE
      DO 60 I=LS1,LAUS
   60 IBAUS(I)=IAUS(I,LS)+IBAUS(I)
      IF(JUMP2-1)422,423,422
  422 CONTINUE
      ITEM=0
      DO 424 I=LS1,LAUS
  424 ITEM=ITEM+IAUS(I,LS)
      DO 425 I=LS1,LRA
  425 ITEM=ITEM+IRA(I,LS)
      ITEM=ITEM+JS(LS)
      MRET(NT)=ITEM
  423 CONTINUE
```

Section 28 moves AUS men completing short tour to base and, for simulations where JUMP2 = 0 or 2, sets MRET(NT) equal to the sum of all returnees returning to base from a completed short tour.

SECTION 29

```
C SECTION 29
C  UPDATE COLUMNS OF IRA
      II=LS-1
      II2=LS+1
      DO 61 M=1,LRA
      DO 611 I=1,II
      J=II2-I
      K=J-1
  611 IRA(M,J)=IRA(M,K)
   61 IRA(M,1)=0
```

Section 29 moves assets in the RA short tour up one column and sets the first columns equal to zero.

SECTION 30

```
C SECTION 30
C  UPDATE COLUMNS OF IAUS
       DO 62 M=1,LAUS
       DO 621 I=1,II
       J=II2-I
       K=J-1
  621 IAUS(M,J)=IAUS(M,K)
   62 IAUS(M,1)=0
```

Section 30 moves assets in the AUS short tour up one column and sets the first column equal to zero.

SECTION 31

```
C SECTION 31
C  MOVE CAREER MEN WHO COMPLETE SHORT TOUR TO BASE
       JC(1)=JS(LS)-IEXT/6+JC(1)
       IF=LS-5
       DO 63 I=1,II
       J=II2-I
       K=J-1
   63 JS(J)=JS(K)
```

Section 31 moves career men from a completed short tour to base and updates the career short tour.

SECTION 32

```
C SECTION 32
C  ACCOUNT FOR EXTENSIONS REMAINING IN SHORT TOUR
       JS(IE)=JS(IE)+IEXT/6
       JS(1)=0
```

Section 32 sets extensions back six months in short tour. (In the career short tour, time in tour is not truly represented, whereas time until expected end of tour is represented.)

SECTION 33

```
C SECTION 33
C  COMPUTE NEEDS FOR SHORT TOUR
      ITEM=0
      ITEM2=0
      ITEM3=0
      DO 65 I=2,LS
      ITEM=ITEM+JS(I)
      DO 64 J=2,LRA
   64 ITEM2=ITEM2+IRA(J,I)
      DO 65 J=2,LAUS
   65 ITEM3=ITEM3+IAUS(J,I)
      JST=ITEM+ITEM2+ITEM3
      NEEDS=MQUOT(NT)-JST
      IF(JUMP2-1)216,217,216
  216 CONTINUE
      INST(NT)=JST
      INEED(NT)=NEEDS
  217 CONTINUE
      IF(NEEDS)650,651,651
  650 NEEDS=0
  651 CONTINUE
```

Section 33 computes the sum of all still in short tour--subtotals are computed but not used. NEEDS, the difference between the monthly short tour quota and the sum of all on hand in short tour, is computed. The number on hand and NEEDS are recorded in vectors INST and INEED. If NEEDS is negative, it is reset to zero.

SECTION 34

```
C SECTION 34
C  ASSIGN DEPLOYABLE TO SHORT TOUR WHEN NEEDED
      R=1.-RTNDPL
      IX=R*JCLC
      IF(JUMP2-1)220,221,220
  220 CONTINUE
      JNEED(NT)=NEEDS
      NDPLT(NT)=JCLC-IX
  221 CONTINUE
      IF(IX-NEEDS)68,69,69
   69 JCLC=JCLC-NEEDS
      JS(1)=JS(1)+NEEDS
      IF(JUMP2-1)260,261,260
  261 CONTINUE
      IOVRLC(NT)=IOVRLC(NT)+NEEDS
  260 CONTINUE
      NEEDS=0
      GO TO 169
```

```
   68 NEEDS=NEEDS-IX
      IF(JUMP2-1)262,263,262
  263 CONTINUE
      IOVRLC(NT)=IOVRLC(NT)+IX
  262 CONTINUE
      JS(1)=IX+JS(1)
      JCLC=JCLC-IX
```

In Section 34, deployable men from JCLC are assigned to short tour (as needed). The number is stored in IOVRLC for the simulation where additional input is not allowed. The number temporarily nondeployable is stored in NDPLT for the other type of simulation.

SECTION 35

```
C SECTION 35
C  MAKE SEARCH FOR AVAILABLE NEW PEOPLE IN FIXED INPUT
      I7=LAUS-7
      I8=LAUS-8
      J7=LRA-7
      J8=LRA-8
      K=J7-I7
      DO 75 I=1,K
      J=J7-I
      IF(IBRAN(J)-NEEDS)76,77,77
   77 IBRAN(J)=IBRAN(J)-NEEDS
      IRA(J,1)=NEEDS+IRA(J,1)
      NEEDS=0
      GO TO 169
   76 NEEDS=NEEDS-IBRAN(J)
      IRA(J,1)=IBRAN(J)+IRA(J,1)
   75 IBRAN(J)=0
      DO 72 I=1,I8
      J=I7-I
      IF(IBAUSN(J)-NEEDS)73,74,74
   74 IBAUSN(J)=IBAUSN(J)-NEEDS
      IAUS(J,1)=NEEDS+IAUS(J,1)
      NEEDS=0
      GO TO 169
   73 NEEDS=NEEDS-IBAUSN(J)
      IAUS(J,1)=IBAUSN(J)
      IBAUSN(J)=0
      IF(IBRAN(J)-NEEDS)66,67,67
   67 IBRAN(J)=IBRAN(J)-NEEDS
      IRA(J,1)=NEEDS+IRA(J,1)
      NEEDS=0
      GO TO 169
   66 NEEDS=NEEDS-IBRAN(J)
      IRA(J,1)=IBRAN(J)
   72 IBRAN(J)=0
```

In Section 35, noncareer people as needed are assigned to short tour from IBRAN and IBAUSN.

SECTION 36

```
C SECTION 36
C  PROVISION FOR NO MORE INPUT IN FIRST SIX MONTHS OF SIMULATION
      IF(NT-7)428,203,203
  428 CONTINUE
      IF(JUMP2-1)169,71,169
  203 CONTINUE
      IF(JUMP2-1)70,71,70
```

Section 36 provides for no additional input during the first 6 months of the simulation. When JUMP2 ≠ 1, the short tour is left short during this period, while when JUMP2 = 1, career people are used as needed to fill the short tour.

SECTION 37

```
C SECTION 37
C  INPUT NEW TRAINEES IN AUS PROPORTION GIVEN
   70 NEEW(NT)=NEEDS
      X=RAUS*NEEDS+.5
      IX=IAUS(2,1)
      IAUS(2,1)=IAUS(2,1)+X
      IRA(2,1)=IRA(2,1)+NEEDS-IAUS(2,1)+IX
      NEEDS=0
      GO TO 169
   71 CONTINUE
```

Section 37 provides for additional input as required by short tour when JUMP2 ≠ 1 and NT > 6. NEEW is an output vector of required new input. All new input is assumed to be deployable for the purposes of this program, and no increment is calculated for failure to graduate from any of the required schools leading to E5 qualification.

SECTION 38

```
C SECTION 38
C  SEARCH FOR CAREER MEN AND CALCULATE AVERAGE BASE TOUR
      II2=LC+1
      NPEOP=0
      NMON=0
      DO 78 I=1,LC
      J=II2-I
      IF(JC(J)-NEEDS)79,80,80
```

```
   80 NPEOP=NPEOP+NEEDS
      NMON=NMON+J*NEEDS
      JC(J)=JC(J)-NEEDS
      JS(1)=JS(1)+NEEDS
      NEEDS=0
      GO TO 168
   79 NPEOP=NPEOP+JC(J)
      NMON=NMON+J*JC(J)
      NEEDS=NEEDS-JC(J)
      JS(1)=JS(1)+JC(J)
   78 JC(J)=0
  168 IRET(NT)=NPEOP
      XP=NPEOP
      XMON=NMON
      IF(XP)169,169,1690
 1690 XTR(NT)=XMON/XP
  169 CONTINUE
      IF(JUMP2-1)420,421,420
  420 CONTINUE
      JNEED(NT)=JNEED(NT)-NEEDS
  421 CONTINUE
```

In Section 38, search is made in the career base tour for short tour replacements. These are assigned as needed and record is kept of the number and the time they have served in base. Average base tour is calculated for the early returnees. Number of replacements sent to short tour is calculated and stored in vector JNEED.

SECTION 39

```
C SECTION 39
C  CALCULATE END MONTH VECTORS AND TOTALS
      JTOT=JCLC+NDPL
      DO 81 I=1,LS
   81 JTOT=JTOT+JS(I)
      DO 82 I=1,LC
   82 JTOT=JTOT+JC(I)
      DO 172 I=1,LS
      MAUS(I)=0
      MRA(I)=0
      DO 173 J=1,LAUS
  173 MAUS(I)=MAUS(I)+IAUS(J,I)
      DO 172 J=1,LRA
  172 MRA(I)=MRA(I)+IRA(J,I)
      ITOT=JTOT
      DO 174 I=1,LS
  174 ITOT=ITOT+MAUS(I)+MRA(I)
      DO 175 I=1,LAUS
  175 ITOT=ITOT+IBAUS(I)+IBAUSN(I)
      DO 176 I=1,LRA
  176 ITOT=ITOT+IBRA(I)+IBRAN(I)
      K=(NT-1)/6+1
```

In Section 39, the total career men in the system, JTOT, and total men in system, ITOT, are calculated. The column sums, MAUS and MRA, are also recalculated. The last FORTRAN statement in this section computes the index of IAUTH, the system authorized strength. Thus, for NT = 10, $K = \frac{10-1}{6} + 1$, or K = 1 + 1 = 2 in integer computation.

SECTION 40

```
C SECTION 40
C  FORCE OUT OF UNAUTHORIZED STRENGTH
      IF(IAUTH(K)-ITOT) 236,237,237
  236 CONTINUE
      IX=ITOT-IAUTH(K)
      IF(JUMP2-1)222,223,222
  222 CONTINUE
      IFOUT(NT)=IX
  223 CONTINUE
      III=LAUS+1
      DO 238 I=1,LAUS
      J=III-I
      IF(IBAUS(J)-IX)239,240,240
  240 IBAUS(J)=IBAUS(J)-IX
      ITOT=ITOT-IX
      IX=0
      GO TO 269
  239 IX=IX-IBAUS(J)
      ITOT=ITOT-IBAUS(J)
      IBAUS(J)=0
      IF(IBAUSN(J)-IX)241,242,242
  242 IBAUSN(J)=IBAUSN(J)-IX
      ITOT=ITOT-IX
      IX=0
      GO TO 269
  241 IX=IX-IBAUSN(J)
      ITOT=ITOT-IBAUSN(J)
      IBAUSN(J)=0
  238 CONTINUE
      JJ1=LRA+1
      DO 248 I=1,LRA
      JJ=JJ1-I
      IF(IBRA(JJ)-IX)243,244,244
  244 IBRA(JJ)=IBRA(JJ)-IX
      ITOT=ITOT-IX
      IX=0
      GO TO 269
  243 IX=IX-IBRA(JJ)
      ITOT=ITOT-IBRA(JJ)
      IBRA(JJ)=0
      IF(IBRAN(JJ)-IX)245,246,246
```

```
246 IBRAN(JJ)=IBRAN(JJ)-Ix
    ITOT=ITOT-IX
    Ix=0
    GO TO 269
245 Ix=IX-IBRAN(JJ)
    ITOT=ITOT-IBRAN(JJ)
    IBRAN(JJ)=0
248 CONTINUE
    DO 429 I=1,6
    IF(JC(I)-IX)430,431,431
431 JC(I)=JC(I)-IX
    ITOT=ITOT-IX
    JTOT=JTOT-IX
    Ix=0
    GO TO 269
430 Ix=IX-JC(I)
    ITOT=ITOT-JC(I)
    JTOT=JTOT-JC(I)
    JC(I)=0
429 CONTINUE
269 CONTINUE
    IF(IX)515,515,516
516 ITEM=0
    DO 517 I=1,LC
517 ITEM=ITEM+JC(I)
    X=ITEM
    Y=JCLC
    Z=NDPL
    F1=Y/(X+Y+Z)
    F2=Z/(X+Y+Z)
    X=IX
    JCLC=Y-F1*Y
    Ix=IX-F1*Y
    NDPL=Z-F2*Z
    Ix=IX-F2*Z
    JJ=LC-6
    LC1=LC+1
    DO 518 I=1,JJ
    J=LC1-I
    IF(JC(J)-IX)519,520,520
520 JC(J)=JC(J)-IX
    Ix=0
    GO TO 515
519 Ix=IX-JC(J)
518 JC(J)=0
    IF(IX)515,515,523
523 PRINT 252,IX,NT
515 CONTINUE
237 CONTINUE
```

In Section 40, any overstrength is forced out of the MOS system starting with AUS men nearing the end of their commitment and working back through all AUS men in base as required, then turning in a similar manner to RA men in base, and finally forcing out career men in base if the system is to be reduced that far. In reducing the returnee, assignable, and nondeployable categories, men are taken out in proportion to the total available.

SECTION 41

```
C SECTION 41
C  SET OUTPUT VECTORS NOT PREVIOUSLY PREPARED
      IF(JUMP2-1)228,229,228
  228 CONTINUE
      NDPLP(NT)=NDPL
      DO 182 I=1,LAUS
  182 NDPLP(NT)=NDPLP(NT)+IBAUS(I)
      DO 183 I=1,LRA
  183 NDPLP(NT)=NDPLP(NT)+IBRA(I)
  229 CONTINUE
      IF(JUMP2-1)224,225,224
  224 CONTINUE
      IGRAND(NT)=ITOT
      NTOTCR(NT)=JTOT
      ICOMP(NT)=JCLC
      ICAR(NT)=0
      DO 121 I=1,LC
  121 ICAR(NT)=ICAR(NT)+JC(I)
  225 CONTINUE
      ITEM=0
      DO 184 I=1,LS
  184 ITEM=ITEM+JS(I)+MAUS(I)+MRA(I)
      JST=ITEM
      IF(JUMP2-1)234,235,234
  234 CONTINUE
      ISTACT(NT)=ITEM
  235 CONTINUE
      IF(JUMP3-2)100,171,170
  170 CONTINUE
```

In Section 41, the remaining output vectors are set: NDPLP, those permanently nondeployable; IGRAND, the total number in the system; NTOTCR, the total career in system; ICOMP, the number in the assignable category; ICAR, the number of career returnees; and ISTACT, the number on hand in short tour. JUMP3 is tested to determine whether monthly print out is required.

SECTION 42

```
C SECTION 42
C  OUTPUT OF RESULTS FOR MONTH
      PRINT 400,NT
      PRINT 300
      PRINT 301,((IAUS(I,J),J=1,LS),I=1,LAUS)
      PRINT 302
      PRINT 301,((IRA(I,J),J=1,LS),I=1,LRA)
  171 CONTINUE
      PRINT 400,NT
      PRINT 300
      PRINT 301,(MAUS(I),I=1,LS)
      PRINT 302
      PRINT 301,(MRA(I),I=1,LS)
      PRINT 303
      PRINT 301,(JS(I),I=1,LS)
      PRINT 304
      PRINT 301,(IBAUS(I),I=1,LAUS)
      PRINT 305
      PRINT 301,(IBRA(I),I=1,LC)
      PRINT 327
      PRINT 301,(JC(I),I=1,LC)
      PRINT 328
      PRINT 301,(IBAUSN(I),I=1,LAUS)
      PRINT 329
      PRINT 301,(IBRAN(I),I=1,LRA)
```

In Section 42, monthly tour matrices are printed if JUMP3 > 2; tour vectors are printed if JUMP3 > 1.

```
C SECTION 42.1
C  END LOOP FOR MONTHLY PROCESSING
  100 CONTINUE
      IF(JUMP2-1)110,110,111
  111 JUMP2=1
      GO TO 103
  110 CONTINUE
      IF(JUMP3-1)112,113,113
  113 CONTINUE
```

Section 42.1 is the end of the monthly updating loop. JUMP2 is tested and reset to run another simulation when desired. In this simulation, no additional new trainee input is allowed and number of returnees and their average base tour are calculated. If the second simulation is not wanted, JUMP3 is tested to determine if summary vectors for use by the capabilities should be printed.

```
C SECTION 43
C  OUTPUT OF SUMMARY VECTORS FOR FULL SIMULATION PERIOD
      PRINT 335
      PRINT 353,SAMP
      PRINT 311
      PRINT 301,(MQUOT(I),I=1,NTIME)
      PRINT 351
      PRINT 301,(ISTACT(I),I=1,NTIME)
      PRINT 336
      PRINT 301,(NDPLP(I),I=1,NTIME)
      PRINT 337
      PRINT 301,(NDPLT(I),I=1,NTIME)
      PRINT 338
      PRINT 301,(ICAR(I),I=1,NTIME)
      PRINT 426
      PRINT 301,(MRET(I),I=1,NTIME)
      PRINT 339
      PRINT 301,(INEED(I),I=1,NTIME)
      PRINT 406
      PRINT 301,(JNEED(I),I=1,NTIME)
      PRINT 340
      PRINT 301,(INST(I),I=1,NTIME)
      PRINT 341
      PRINT 301,(ICOMP(I),I=1,NTIME)
      PRINT 343
      PRINT 301,(KAS(I),I=1,NTIME)
      PRINT 344
      PRINT 301,(KAS2(I),I=1,NTIME)
      PRINT 347
      PRINT 301,(IETS(I),I=1,NTIME)
      PRINT 434
      PRINT 301,(IFOUT(I),I=1,NTIME)
      PRINT 349
      PRINT 301,(NTOTCR(I),I=1,NTIME)
      PRINT 348
      PRINT 301,(IGRAND(I),I=1,NTIME)
      PRINT 324
      PRINT 301,(NEEW(I),I=1,NTIME)
      PRINT 330
      PRINT 301,(NEW(I),I=1,NTIME)
      IF(JUMP2-1)231,230,231
  230 CONTINUE
      PRINT 325
      PRINT 301,(IRET(I),I=1,NTIME)
      PRINT 326
      PRINT 323,(XTR(I),I=1,NTIME)
      PRINT 392,LC
      PRINT 301,(IOVRLC(I),I=1,NTIME)
  231 CONTINUE
  112 CONTINUE
```

In Section 43, vectors of information for the capabilities analyst are printed along with appropriate labels.

Definitions of Vectors Printed

MQUOT = monthly short tour quotas

ISTACT = on hand in short tour

NDPLP = number permanently nondeployable

NDPLT = number temporarily nondeployable

ICAR = returnees in base with less than LC months

MRET = returnees who complete short tour and go back to base

INEED = number of replacements needed by short tour to fill quota

JNEED = number of replacements sent to short tour

INST = number in short tour before JNEED is sent

ICOMP = number in base with more than LC months

KAS = casualties to Army. Since a rate is used, the MOS with few expected casualties may show none.

KAS2 = casualties to short tour; early returnees

IETS = number leaving the system at the end of their first term of service

IFOUT = number forced out to stay within authorized strength

NTOTCR = number in career system after first term of service

IGRAND = total number in system

NEEW = calculated additional training output needed

NEW = scheduled training output

IRET = number of early returnees required if no additional input is allowed

XTR = the average base tour for IRET

IOVRLC = number of returnees who have had sufficient time in base (for no additional input case)

```
C SECTION 44
C  PREPARATION AND OUTPUT OF LEDGER SHEET SUMMARY
C SECTION 44.1
C  ADD TPS ALLOWANCE TO TIME ZERO AUTHORIZATION
      IY=(RTPS*IAUTHN+.5)
      L6(1)=IAUTHN+IY
      DO 130 I=1,4
      J=I+1
  130 L6(J)=IAUTH(I)
      JBASE(1)=IAUTHN-IQUOTN
      IQUOTN=IQUOTN+NPAT
      IX=(RTPS*IAUTHN+.5)
      L5(1)=IX - NPAT
```

At this point, the simulation and output for the analyst are completed. The remainder of the program is concerned with production of the summary for management. The program steps preparing the summary are explained by comment cards in sufficient detail that no further explanation is offered here.

```
C SECTION 44.2
C  CALCULATE BASE AUTHORIZATIONS
      DO 272 I=1,4
      J=I+1
  272 JBASE(J)=JAUTH(I)-IQUOT(I)
C SECTION 44.3
C  CORRECT TPS ALLOWANCE TO EXCLUDE PATIENTS IN SHORT TOUR
      DO 293 I=2,5
      J=I-1
  293 L5(I)=IAUTH(J)-JAUTH(J)-NPAT
C SECTION 44.4
C  CALCULATE SCHEDULED NEW DEPLOYMENT
      L12(1)=NQUOT(1)-IQUOTN
      DO 274 I=2,4
      J=I-1
  274 L12(I)=NQUOT(I)-NQUOT(J)
C SECTION 44.5
C  CALCULATE ROTATION REPLACEMENTS
      DO 427 I=1,4
      L9(I)=0
      J=I*6
      K=J-5
      DO 427 II=K,J
  427 L9(I)=L9(I)+MRET(II)
C SECTION 44.6
C  CALCULATE  REQUIRED OTHER REPLACEMENTS
      L10(1)=IQUOTN-NST
      DO 401 I=2,4
      J=I-1
      K=J*6
  401 L10(I)=NQUOT(J)-ISTACT(K)
```

```
C SECTION 44.7
C  SUM CASUALTY REPLACEMENTS NEEDED FOR SIX MONTHS
      DO 432 I=1,4
      L11(I)=0
      J=I*6
      K=J-5
      DO 432 II=K,J
  432 L11(I)=L11(I)+KAS(II)*KAS2(II)
C SECTION 44.8
C  TOTAL DEPLOYMENTS SHOWN ON SUMMARY SHEET
      JEXT=-IEXT
      DO 273 I=1,4
  273 L14(I)=L9(I)+L10(I)+L12(I)+L11(I)+JEXT
C SECTION 44.9
C  SUM NUMBER LEAVING SYSTEM AT END OF FIRST TERM OF SERVICE
      L22(1)=NTOT
      DO 288 I=1,4
      J=6*I
      K=J-5
      L20(I)=0
      DO 277 II=K,J
  277 L20(I)=L20(I)+IETS(II)
  288 L20(I)=-L20(I)
C SECTION 44.10
C  SUM CASUALTIES TO ARMY
      DO 433 I=1,4
      L21(I)=0
      J=I*6
      K=J-5
      DO 433 II=K,J
  433 L21(I)=L21(I)-KAS(II)
C SECTION 44.11
C  SUM REQUIRED ADDITIONAL NEW TRAINING OUTPUT TO ALLOW LC MONTHS IN BASE
      DO 278 I=1,4
      J=I*6
      K=J-5
      L28(I)=0
      DO 278 II=K,J
  278 L28(I)=L28(I)+NEEW(II)
C SECTION 44.12
C  SUM NUMBER FORCED OUT OF SYSTEM TO REMAIN UNDER AUTHORIZED STRENGTH
      DO 281 I=1,4
      L30(I)=0
      J=6*I
      K=J-5
      DO 281 II=K,J
  281 L30(I)=L30(I)+IFOUT(II)
```

```
C SECTION 44.13
C  COMPUTE NUMBER IN SYSTEM AT START OF SIX-MONTH UPDATING
      L17(1)=NTOT
      DO 435 I=2,4
      J=I-1
  435 L17(I)=L17(J)+L28(J)-L30(J)+IGRO6(J) +INPT(J)+L20(J)+L21(J)
      DO 276 I=2,5
      J=I-1
  276 L22(I)=L17(J)+IGRO6(J)+L20(J)+L21(J)+INPT(J)
C SECTION 44.14
C CALCULATE NUMBER IN SHORT TOUR WITHOUT ADDITIONAL TRAINEES
      DO 279 I=1,4
      J=I*6
  279 L24(I)=ISTACT(J)-L28(1)
C SECTION 44.15
C  PUT RETURNEES WITH UNDER LC MONTHS AND NONDEPLOYABLES IN OUTPUT VECTORS
      L25(1)=0
      DO 280 I=1,4
      L25(1)=L25(1)+NC(1)
      J=6*I
      K=I+1
  280 L25(K)=ICAR(J)
      DO 402 I=1,4
      K=I*6
  402 L26(I)=NDPLP(K)+NDPLT(K)
C SECTION 44.16
C  CALCULATE TOTAL LINE
      DO 403 I=1,4
      J=I+1
  403 L27(I)=L24(I)+L25(J)+L26(I)
C SECTION 44.17
C     CHANGE SIGN OF TRAINEE INPUT FOR LINE 28
      DO 289 I=1,4
  289 L28(I)=-L28(I)
C SECTION 44.18
C     CORRECT SIGN OF TRAINEE INPUT FOR LINE 33
      DO 290 I=1,4
  290 L33(I)=-L28(I)
C SECTION 44.19
C  SET OVERAGE IN SHORT TOUR TO ZERO FOR TIME ZERO
      IX=IQUOTN-NST
      IF(IX)291,291,292
  291 Ix=0
  292 CONTINUE
```

```
C SECTION 44.20
C  COMPUTE NUMBER OF SUBSTITUTIONS AND PERCENT OF SHORT TOUR QUOTA
      X=IX
      Y=IQUOTN
      X36(1)=(X/Y+.0005)
      L36(1)=IX
      IX=L33(1)+NQUOT(1)-ISTACT(6)
      X=IX
      Y=NQUOT(1)
      L36(2)=IX
      X36(2)=(X/Y+.0005)
      IX=L33(1)+L33(2)+NQUOT(2)-ISTACT(12)
      X=IX
      Y=NQUOT(2)
      L36(3)=IX
      X36(3)=(X/Y+.0005)
      IX=L33(2)+L33(3)+NQUOT(3)-ISTACT(18)
      X=IX
      Y=NQUOT(3)
      L36(4)=IX
      X36(4)=(X/Y+.0005)
      IX=L33(3)+L33(4)+NQUOT(4)-ISTACT(24)
      X=IX
      Y=NQUOT(4)
      L36(5)=IX
      X36(5)=(X/Y+.0005)
      DO 285 I=1,5
  285 X36(I)=100.*X36(I)
C SECTION 44.21
C  SUM RETURNEES WITH SHORT BASE TOUR AND CALCULATE AVERAGE BASE TOUR
      DO 286 I=1,4
      J=I*6
      K=J-5
      YMON=SUM=0
      L37(I)=0
      DO 287 II=K,J
      L37(I)=L37(I)+IRET(II)
      X=IRET(II)
      YMON=YMON+X*XTR(II)
  287 SUM=SUM+X
      IF(SUM)294,294,295
  294 L38(I)=25.0
      GO TO 286
  295 L38(I)=(YMON/SUM+.5)
  286 CONTINUE
C SECTION 44.22
C PRINT SUMMARY SHEET
C      SLEW TO THE TOP OF NEXT PAGE
      PRINT 352
C      PRINT SAMPLE CODE AT TOP OF SUMMARY SHEET
      PRINT 353,SAMP
```

```
PRINT LINE 1, END QUARTER DATES
PRINT 354,(A(I),I=1,5)
PRINT LINE 2, REQUIREMENTS SECTION HEADING
PRINT 355
PRINT LINE 3, SHORT TOUR REQUIREMENTS PLUS PATIENTS
PRINT 356,IQUOTN,(NQUOT(I),I=1,4)
PRINT LINE 4, BASE STRUCTURE REQUIREMENTS
PRINT 357,(JBASE(I),I=1,5)
PRINT LINE 5, TPS IN BASE
PRINT 358,(L5(I),I=1,5)
PRINT LINE 6, TOTAL REQUIREMENTS
PRINT 359,(L6(I),I=1,5)
PRINT LINE 7, SIX MONTH PERIOD BEGINNING AND END
PRINT 360,(B(I),I=1,4)
PRINT LINE 8, DEPLOYMENT SECTION AND CALENDAR YEARS FOR SIX MONTH PERIODS
PRINT 361,(I8(I),I=1,4)
PRINT LINE 9, ROTATION REPLACEMENTS
PRINT 362,(L9(I),I=1,4)
PRINT LINE 10, REPLACEMENTS TO ELIMINATE SHORTFALL OR SUBSTITUTIONS
PRINT 363,(L10(I),I=1,4)
PRINT LINE 11, SHORT TOUR CASUALTIES
PRINT 364,(L11(I),I=1,4)
PRINT LINE 12, NEW DEPLOYMENT PLANNED
PRINT 365,(L12(I),I=1,4)
PRINT LINE 13, SHORT TOUR EXTENSIONS IN NUMBER FOR 6-MONTHS
PRINT 366,(JEXT,I=1,4)
PRINT LINE 14, TOTAL DEPLOYMENT
PRINT 367,(L14(I),I=1,4)
PRINT LINE 15, NO INFORMATION
PRINT 368
PRINT LINE 16, ASSETS SECTION HEADING
PRINT 369
PRINT LINE 17, ACTUAL ASSETS ON HAND AT END PREVIOUS 6 MONTHS
PRINT 370,(L17(I),I=1,4)
PRINT LINE 18, EXPECTED SYSTEM GROWTH
PRINT 371,(IGRO6(I),I=1,4)
PRINT LINE 19, SCHEDULED TRAINING OUTPUT
PRINT 372,(INPT(I),I=1,4)
PRINT LINE 20, LOSSES FROM FAILURE TO REENLIST
PRINT 373,(L20(I),I=1,4)
PRINT LINE 21, CASUALTY LOSSES
PRINT 374,(L21(I),I=1,4)
PRINT LINE 22, TOTAL ASSETS AVAILABLE FOR USE
PRINT 375,(L22(I),I=1,5)
PRINT LINE 23, NONDEPLOYABLES SECTION HEADING
PRINT 376
PRINT LINE 24, NUMBER OF AVAILABLE ASSETS IN SHORT TOUR
PRINT 377,NST,(L24(I),I=1,4)
PRINT LINE 25, RETURNEES WITH LESS THAN 24 MONTHS IN BASE
PRINT 378,(L25(I),I=1,5)
```

```
      PRINT LINE 26, PERSONS REQUIRED BECAUSE OF POLICIES RESTRAINING ASSIGNMENT
      PRINT 379,(L26(I),I=1,4)
      PRINT LINE 27, TOTAL NONDEPLOYABLES
      PRINT 380,(L27(I),I=1,4)
      PRINT LINE 28, DEFICIT (IF ANY)
      PRINT 381,(L28(I),I=1,4)
      PRINT LINE 29, NO INFORMATION
      PRINT 382
      PRINT LINE 30, RETURNEES FORCED OUT OF MOS TO STAY AT AUTHORIZED STRENGTH
      PRINT 383,(L30(I),I=1,4)
      PRINT LINE 31, NO INFORMATION
      PRINT 384
      PRINT LINE 32, POLICY ALTERNATIVES
      PRINT 385
      PRINT LINE 33, ALTERNATIVE A, ADDITIONAL SCHOOL OUTPUT
      PRINT 386,(L33(I),I=1,4)
      PRINT LINE 34 AND 35, NOT CALCULATED BY DYRONII, SPACE FOR TRAINOR AND
      STUDENT REQUIREMENTS
      PRINT 387
      PRINT 388
      PRINT LINE 36,  ALTERNATIVE B,GRADE SUBSTITUTION BY NUMBER AND PERCENT.
      PRINT 389,((L36(I),X36(I)),I=1,5)
      PRINT LINE 37 ALTERNATIVE C, RETURNEES WITH LESS THAN 24 MONTHS IN BASE
      PRINT 390,(L37(I),I=1,4)
      PRINT LINE 38, AVERAGE BASE TOUR FOR RETURNEES
      PRINT 391,(L38(I),I=1,4)
      GO TO 101
  116 STOP
   11 FORMAT(6I5)
   12 FORMAT(2I5,2F5.3)
   16 FORMAT(5XA5,11I6)
   17 FORMAT(5XA5,6F5.3,I5)
  252 FORMAT(42HOAUTHORIZATION FOR THIS SAMPLE IS SHORT BY    I5,4HMEN,6
     1HIN THE  I5, 5HMONTH)
  300 FORMAT(20HOSHORT TOUR AUS          )
  301 FORMAT(1H 12I8)
  302 FORMAT(20HOSHORT TOUR RA              )
  303 FORMAT(20HOSHORT TOUR CAREER          )
  304 FORMAT(25HOBASE TOUR AUS RETURNEES        )
  305 FORMAT(30HOBASE TOUR RA RETURNEES          )
  306 FORMAT(18HOCAREER BASE TOUR     )
  309 FORMAT(9A7,4I2)
  311 FORMAT(20HOMONTHLY QUOTAS           )
  316 FORMAT(19HOCAREER SHORT TOUR         )
  320 FORMAT(30HOPERMANENTLY NONDEPLOYABLE =     I5)
  323 FORMAT(1HO12F8.3)
  324 FORMAT(50HOREQUIRED INPUT BY MONTH
  325 FORMAT(50HORETURNEES WITH LESS THAN DESIRED BASE TOUR
  326 FORMAT(50HOAVERAGE BASE TOUR FOR EARLY RETURNEES
  327 FORMAT(20HOCAREER BASE TOUR         )
  328 FORMAT(30HONEW AUS WITHOUT ST HISTORY       )
```

```
329 FORMAT(30H0NEW RA WITHOUT ST HISTORY        )
330 FORMAT(50H0NUMBER OF TRAINEES SCHEDULED TO ENTER SYSTEM          )
331 FORMAT(20H0CAREER ASSIGNABLES=          I5)
332 FORMAT(25H0SYSTEM TOTAL FOR GROWTH       I8)
335 FORMAT(40H1VECTORS OF OUTPUT FOR ALL NTIME PERIODS          )
336 FORMAT(40H0PERMANENTLY NONDEPLOYABLE                      )
337 FORMAT(40H0TEMPORARILY NONDEPLOYABLE                      )
338 FORMAT(45H0RETURNEES IN BASE WITH LESS THAN 24 MO         )
339 FORMAT(30H0REPLACEMENTS NEEDED FOR ST        )
340 FORMAT(40H0ALREADY IN ST                                  )
341 FORMAT(40H0ASSETSWITH COMPLETED BASE TOUR                 )
343 FORMAT(40H0CASUALTIES TO ARMY                             )
344 FORMAT(40H0CASUALTIES TO ST                               )
347 FORMAT(40H0STUDENT ETS                                    )
348 FORMAT(40H0SYSTEM GRAND TOTAL                             )
349 FORMAT(40H0CAREER SYSTEM TOTAL                            )
351 FORMAT(20H0SHORT TOUR ACTUAL        )
352 FORMAT(1H1   )
353 FORMAT(//13H0SAMPLE CODE   A5)
354 FORMAT(//4H  1.40X,A7.11XA7,11XA7,11XA7,11XA7)
355 FORMAT(4H  2.13H REQUIREMENTS)
356 FORMAT(4H  3.3X10HSHORT TOUR 27XI6.12XI6.12XI6.12XI6.12XI6)
357 FORMAT(4H  4.3X14HBASE STRUCTURE23XI6.12XI6.12XI6.12XI6.12XI6)
358 FORMAT(4H  5.3X11HTPS IN BASE 26XI6.12XI6.12XI6.12XI6.12XI6)
359 FORMAT(4H  6.26X5HTOTAL8XI7.11XI7.11XI7.11XI7.11XI7)
360 FORMAT(4H0 7.49XA7.11XA7.11XA7.11XA7)
361 FORMAT(15H  8. DEPLOYMENT41XI2.16XI2.16XI2.16XI2)
362 FORMAT(4H  9.3X21HROTATION REPLACEMENTS25XI6.12XI6.12XI6.12XI6)
363 FORMAT(4H 10.3X18HOTHER REPLACEMENTS28XI6.12XI6.12XI6.12XI6)
364 FORMAT(4H 11.3X21HCASUALTY REPLACEMENTS25XI6.12XI6.12XI6.12XI6)
365 FORMAT(4H 12.3X14HNEW DEPLOYMENT32XI6.12XI6.12XI6.12XI6)
366 FORMAT(4H 13.5X17HLESS - EXTENSIONS26XI7.11XI7.11XI7.11XI7)
367 FORMAT(4H 14.26X5HTOTAL17XI7.11XI7.11XI7.11XI7)
368 FORMAT(4H 15.)
369 FORMAT(11H0 16. ASSETS)
370 FORMAT(4H 17.16H   ACTUAL ASSETS42XI6.12XI6.12XI6.12XI6)
371 FORMAT(4H 18.13H   NEW GROWTH46XI5.13XI5.13XI5.13XI5)
372 FORMAT(4H 19.17H   STUDENT OUTPUT42XI5.13XI5.13XI5.13XI5)
373 FORMAT(4H 20.5X18HLESS - STUDENT ETS35XI6.12XI6.12XI6.12XI6)
374 FORMAT(4H 21.5X22HLESS - CASUALTY LOSSES31XI6.12XI6.12XI6.12XI6)
375 FORMAT(4H 22.26X5HTOTAL8XI7.11XI7.11XI7.11XI7.11XI7)
376 FORMAT(20H0 23. NON-DEPLOYABLES)
377 FORMAT(4H 24.3X13HIN SHORT TOUR24XI6.12XI6.12XI6.12XI6.12XI6)
378 FORMAT(4H 25.3X.29HRETURNEES LESS THAN 24 MONTHS8XI6.12XI6.12XI6.
   112XI6.12XI6)
379 FORMAT(4H 26.3X29HNON-STRUCTURAL PERSONNEL REQ.26XI6.12XI6.12XI6.1
   12XI6)
380 FORMAT(4H 27.26X5HTOTAL26XI7.11XI7.11XI7.11XI7)
381  FORMAT(4H 28.1X15HDEFICIT         41XI7.11XI7.11XI7.11XI7)
382 FORMAT(4H 29.)
383 FORMAT(4H 30.2HH RETURNEES FORCED OUT OF MOS30XI6.12XI6.12XI6.12XI
   16)
```

```
 384 FORMAT(4H 31.)
 385 FORMAT(17H032. ALTERNATIVES)
 386 FORMAT(4H 33.3X20HA. NCO SCHOOL OUTPUT35XI6.12XI6.12XI6.12XI6)
 387 FORMAT(4H 34.8X8HTRAINORS)
 388 FORMAT(4H 35.8X8HSTUDENTS)
 389 FORMAT(4H 36.3X21HB. GRADE SUBSTITUTION16XI6.2X1H(F5.1.2H )2XI6.2X
    11H(F5.1.2H )2XI6.2X1H(F5.1.2H )2XI6.2X1H(F5.1.2H )2XI6.2X1H(F5.1.
    22H ))
 390 FORMAT(4H 37.3X32HC. RETURNEES LESS THAN 24 MONTHS23XI6.12XI6.12XI
    16.12XI6)
 391 FORMAT(4H 38.8X27HAVG. BASE TOUR OF RETURNEES27XI2.16XI2.16XI2.16X
    II2)
 392 FORMAT(21H0RETURNEES WITH OVER  I3.15H MONTHS IN BASE)
 400 FORMAT(10H0MONTH****     I5)
 406 FORMAT(25H0REPLACEMENTS SENT TO ST      )
 426 FORMAT(55H0RETURNEES COMPLETING SHORT TOUR AND RETURNING TO BASE )
 434 FORMAT(25H0MEN FORCED OUT EARLY       )
 509 FORMAT(32H0NOT POSSIBLE TO REDUCE SYSTEM        I5.3HMEN)
3003 FORMAT(37H0SAMPLE CODES DO NOT AGREE CARD 1 =    A5.10H CARD2=
    1A5.10HCARD 3=      A5)

      END
```

APPENDIX B. SAMPLE APPLICATION OF MODEL

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APPENDIX B. SAMPLE APPLICATION OF MODEL

The sample used had 1684 people in short tour, 698 in base with under six months, 616 with six to twelve months, 567 with twelve to eighteen months, and 224 with eighteen to twenty-four months, and total assets of 6329. Below is a listing of the data input with location by card and column. Figure B-1 shows the data deck set-up.

Data Input for Example

Card	Columns	Identification	Used in Example
Card 1	1-7	Summary sheet	31 Dec 67
(Header card)	8-14	line 1, dates	30 Jun 68
	15-21		31 Dec 68
	22-28		30 Jun 69
	29-35		31 Dec 69
	36-42		Jan - Jun
	43-49	Summary sheet	Jul - Dec
	50-56	line 7, dates	Jan - Jun
	57-63		Jul - Dec
	64-65		68
	66-67	Summary sheet	68
	68-69	line 8, dates	69
	70-71		69
Card format (9A7, 4I2)			
Card 2	1-5	LS, duration of short tour	12
	6-10	LC, duration of base tour	24
	11-15	NP, number of 6-month periods simulated	4
	16-20	Jumpl, quota control. If 0, use quotas as read; if 1 change 1st year quotas to linear increments from number presently in short tour.	0

Card	Columns	Identification	Used in Example
	21-25	Jump2, type simulation desired. If 0, simulation made computing additional training output required to allow LC months in base; if 1 simulation made with no additional training output but with computation of number of returnees required and their average base tour; and if 2 both the above simulations are made giving the results of two management policies.	
	26-30	Printer control. If 0 only summary sheet is printed; if 1 summary sheet and summary vectors for operations analyst; if 2 summary sheet, summary vectors and monthly tour vectors; and if 3 same as 2 plus matrices for noncareer categories. ODCSPER usage usually requires a 1 for the management oriented sheet and the more complete information summarized in the analyst's vectors.	3
Card 3 (2nd batch control card)	1-5	IKSTOT, total estimated monthly casualties	461
	6-10	IPATOT, total allowance for patients in short tour	693
	11-15	RPNDPL, rate of permanent nondeployability	.048
	16-20	RKKAS, rate of permanent casualties	.470

Card	Columns	Identification	Used in Example
Card format (2I5, 2F5.3)			
Card 4 (MOS sample card 1)	6-10	SAMP, sample code	6
	11-16	NST, number in short tour	1684
	17-22	NC(1), number in base with 1-6 months	698
	23-28	NC(2), number in base with 6-12 months	616
	29-34	NC(3), number in base with 12-18 months	567
	35-40	NC(4), number in base with 18-24 months	224
	41-46	NTOT, total number in MOS	6329
Card format (5X, A5, 6I6)			
Card 5 (MOS sample card 2)	6-10	SAMP1, sample code	6
	11-16	IQUOTN, short tour quota for present period	2650
	17-22	IQUOT (1), short tour quotas for 1st 6 months	3353
	23-28	IQUOT (2), short tour quotas for 2d 6 months	3359
	29-34	IQUOT (3), short tour quotas for 3d 6 months	3359
	35-40	IQUOT (4), short tour quotas for 4th 6 months	3359
	41-46	IAUTHN, MOS authorization for present 6 months	6570
	47-52	IAUTH (1) authorization for 1st 6 months	7350
	53-58	IAUTH (2) authorization for 2d 6 months	7365
	59-64	IAUTH (3) authorization for 3d 6 months	7365
	65-70	IAUTH (4) authorization for 4th 6 months	7365

Card	Columns	Identification	Used in Example
Card format (5X A5, 10I6)			
Card 6 (MOS sample card 3)	6-10	SAMP2, sample code	6
	11-16	RTNDPL, rate of temporary deployability	226
	17-22	RCAS, promotion of estimated casualties	.011
	23-28	RETNT1, retention rate for AUS	.019
	29-34	RETNT2, retention rate for RA	.019
	35-40	RAUS, proportion AUS	.316
	41-46	RTPS, rate of transients, patients, and students	.148
	47-52	LNCO, length of skill development training in weeks	20
Card format (5X A5, 6F5.3, I5)			
Card 7 (MOS sample card 4)	6-10	SAMP3, sample code	6
	11-16	IEXT, estimated short tour extensions	90
	17-22	IGRO6(1), estimated growth, 1st 6 months	105
	23-28	IGRO6(2), estimated growth, 2d 6 months	105
	29-34	IGRO6(3), estimated growth, 3d 6 months	105
	35-40	IGRO6(4), estimated growth, 4th 6 months	105
	41-46	NEW(1), training output 1st month	300
	47-52	NEW(2), training output 2d month	0
	53-58	NEW(3), training output 3d month	0
	59-64	NEW(4), training output 4th month	0
	65-70	NEW(5), training output 5th month	0

Card	Columns	Identification	Used in Example
	71-76	NEW(6), training output 6th month	0

Card format (5X A5, 11I6)

Repeat cards 4-7 (sample cards 1-4) for next sample in the same batch. Blank card after last sample card causes next batch cards to be read. A blank batch card causes the model to terminate analysis. (See Figure B-1 on following page.)

The model set aside .048*6329 = 304 as permanently nondeployable, and spread the 1684 in short tour evenly through the 12-month tour and the six-month blocks of returnees from short tour in equal monthly parts through the base tour. The remaining assets were put in the career assignable category, JCLC. It was assumed at the outset that all persons in the inventory were members of the career system. Later use of the model may require that the starting data base be obtained in a different form. To meet this requirement, the data acquisition sections needed (1 and 11) will have to be changed. The starting data base was in the form shown in Table B-1 at report writing time.

The computer also spread the short tour scheduled six-month increases or decreases evenly month by month. Thus, the requirement of 3353 at the end of the first six months, plus 8 (allowance for patients) for a total of 3361, was approached from 1684 in monthly increments of 279 for the first five months and 282 for the sixth month. The full 24-month sequence of quotas appears in Table B-2.

In the first period, losses of 4 men were taken from the short tour, 2 were casualties to the Army, and 2 were casualties to short tour. Growth of 16 was added to the career deployable category and 1 to the permanently nondeployable, 14 people extended their time in short tour, 126 were returned to base, and 407 new deployments and replacements were sent to short tour. The 300 newly trained additions were divided between the deployable and nondeployable categories and between RA and AUS according to rates (.048 permanently nondeployable and .316 AUS) furnished for the sample: 94 AUS and 206 RA, 4 nondeployable AUS, and 9 nondeployable RA. Since the model used deployable old members of the system before the new members, the new members were assigned to the appropriate sustaining base tours. Tour vectors and totals after the first month updating appear in Table B-3.

The monthly updating process was repeated for 23 more months. At the end of month 12, the system appeared as shown in Table B-4. The tour for RA and AUS in the short tour area were carried as matrices. (See Table B-5.)

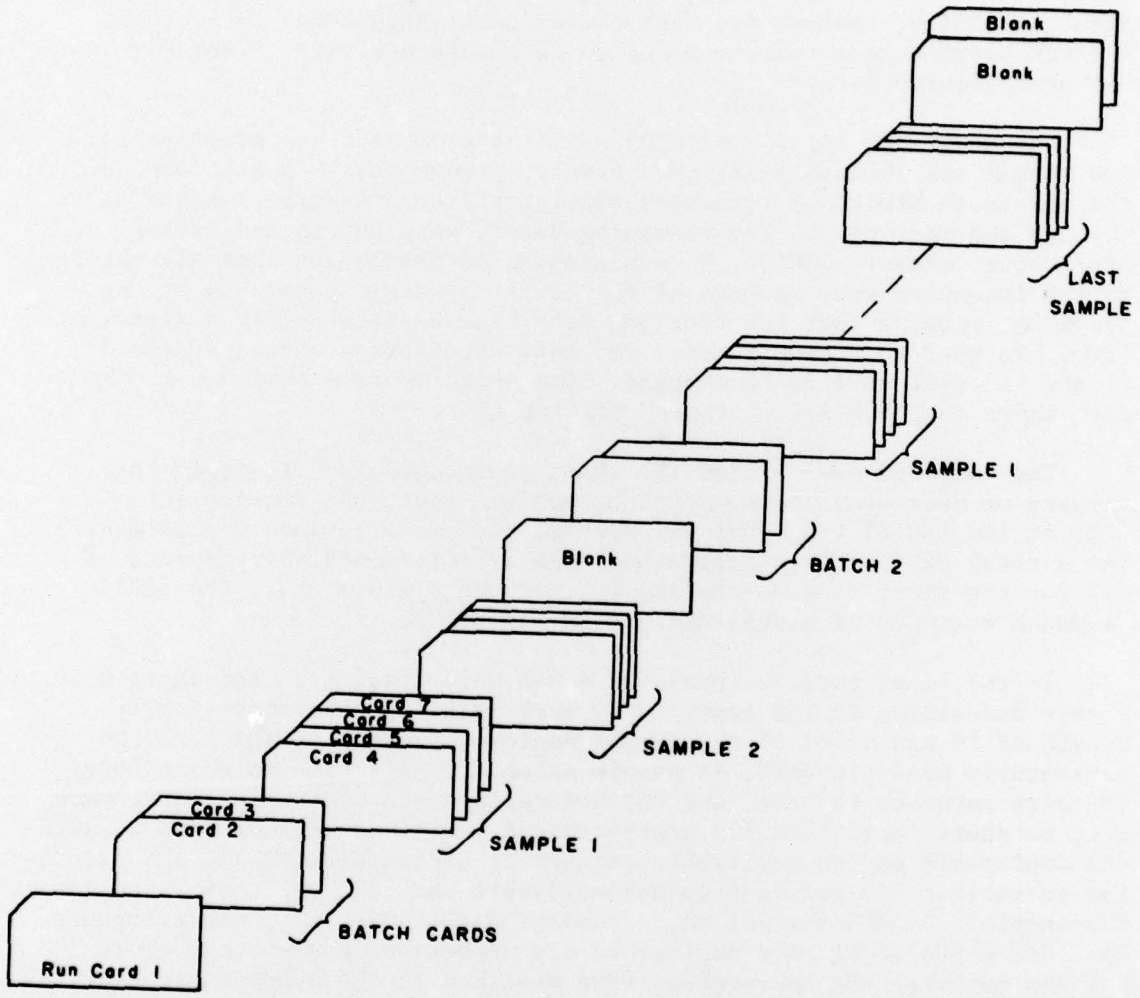

Figure B-1. Data Deck for DYROM II

Table B-1

DATA BASE AFTER COMPUTER PREPARATION

CAREER BASE TOUR											
116	116	117	116	116	116	103	103	102	103	103	102
94	95	94	95	94	95	38	37	37	38	37	37
CAREER SHORT TOUR											
141	140	140	141	140	140	141	140	140	141	140	140

PERMANENTLY NONDEPLOYABLE = 304

CAREER ASSIGNABLES= 2236

SYSTEM TOTAL FOR GROWTH 6329

Table B-2

MONTHLY SHORT TOUR REQUIREMENT QUOTAS

MONTHLY QUOTAS											
1963	2242	2521	2800	3079	3361	3362	3363	3364	3365	3366	3367
3367	3367	3367	3367	3367	3367	3367	3367	3367	3367	3367	3367

Table B-3

END MONTH 1 •

MONTH•••• 1

SHORT TOUR AUS

0 0 0 0 0 0 0 0 0 0 0 0

SHORT TOUR RA

0 0 0 0 0 0 0 0 0 0 0 0

SHORT TOUR CAREER

407 141 140 140 140 140 154 141 139 140 141 140

BASE TOUR AUS RETURNEES

4 0 0 0 0 0 0 0 0 0 0 0
0 0

BASE TOUR RA RETURNEES

9 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0

CAREER BASE TOUR

126 116 116 117 116 116 116 103 103 102 103 103
102 94 95 94 95 94 95 38 37 37 38 37

NEW AUS WITHOUT ST HISTORY

90 0 0 0 0 0 0 0 0 0 0 0
0 0

NEW RA WITHOUT ST HISTORY

197 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0
0 0

PERMANENTLY NONDEPLOYABLE = 305

CAREER ASSIGNABLES= 1882

SYSTEM TOTAL FOR GROWTH 6343

Table B-4

END MONTH 12

MONTH**** 12

SHORT TOUR AUS

3	1	0	0	0	82	0	0	29	53	0	0

SHORT TOUR RA

7	2	0	0	0	179	0	101	96	0	0	0

SHORT TOUR CAREER

133	140	144	144	143	173	207	245	298	357	416	414

BASE TOUR AUS RETURNEES

0	0	0	0	0	0	0	0	0	0	0	4
0	0										

BASE TOUR RA RETURNEES

0	0	0	0	0	0	0	0	0	0	0	9
0	0	0	0	0	0	0	0	0	0	0	0

CAREER BASE TOUR

141	140	141	141	140	141	127	126	127	128	126	126
116	116	117	116	116	116	103	103	102	103	103	102

NEW AUS WITHOUT ST HISTORY

0	0	0	0	0	0	0	0	0	0	0	0
0	0										

NEW RA WITHOUT ST HISTORY

0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
0	0										

PERMANENTLY NONDEPLOYABLE = 316

CAREER ASSIGNABLES= 477

SYSTEM TOTAL FOR GROWTH 6524

Table B-5

END MONTH 12 SHORT TOUR MATRICES

MONTH**** 12

SHORT TOUR AUS

0	0	0	0	0	0	0	0	0	0	0	0
(3)	0	0	0	0	0	0	0	0	0	0	0
0	(1)	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	(82)	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	29	53	0	0
0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0

SHORT TOUR HA

0	0	0	0	0	0	0	0	0	0	0	0
(7)	0	0	0	0	0	0	0	0	0	0	0
0	(2)	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	(179)	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	101	96	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0

The vector sums shown in Table B-4 show the replacement schedules. Table B-5 shows time in tour (columns) and time in system (rows). After the first six months, the model calculated (and simulated) additional training output as needed. Note circled entries in Table B-5. After completing the 24-month simulation, the model checked the training input option, Jump2, and, if desired, went through a second 24 months without adding more than scheduled to the system. End month 12 under these conditions appears in Table B-6. The last month of the second simulation, Table B-7, shows the shortened career base tour due to the demands of the short tour.

The summary vectors are shown in Table B-8, parts 1 and 2.

The management-oriented summary sheet is shown in Table B-9 (reduced for printing in this report).

The summary reports on the system under examination at 6-month intervals, and features alternative solutions to the constrained system depending upon which policies are decided upon. No attempt is made to combine the separate management policy alternatives.

Table B-6

END MONTH 12 WITHOUT ADDITIONAL TRAINING OUTPUT

MONTH**** 12

SHORT TOUR AUS
0 0 0 0 0 0 0 0 29 55 0 0

SHORT TOUR RA
0 0 0 0 0 0 0 101 96 0 0 0

SHORT TOUR CAREER
143 143 143 144 143 143 423 319 296 358 415 416

BASE TOUR AUS RETURNEES
0 0 0 0 0 0 0 0 0 0 0 4
0 0

BASE TOUR RA RETURNEES
0 0 0 0 0 0 0 0 0 0 0 9
0 0 0 0 0 0 0 0 0 0 0 0

CAREER BASE TOUR
141 140 141 141 140 141 127 126 127 128 126 126
116 116 117 116 116 116 103 103 102 103 103 35

NEW AUS WITHOUT ST HISTORY
0 0 0 0 0 0 0 0 0 0 0 0
0 0

NEW RA WITHOUT ST HISTORY
0 0 0 0 0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0 0 0 0 0
0 0

PERMANENTLY NONDEPLOYABLE = 316

CAREER ASSIGNABLES= 272

SYSTEM TOTAL FOR GROWTH 6524

Table B-7

MONTH 24 OF SIMULATION 2--NO ADDITIONAL INPUT

MONTH**** 24

SHORT TOUR AUS

0	0	0	0	0	0	0	0	0	0	0	0

SHORT TOUR RA

0	0	0	0	0	0	0	0	0	0	0	0

SHORT TOUR CAREER

144	145	146	144	146	143	423	420	389	437	414	416

BASE TOUR AUS RETURNEES

0	0	0	0	0	0	0	0	0	0	0	0
0	0										

BASE TOUR RA RETURNEES

0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	204

CAREER BASE TOUR

142	143	144	142	144	141	407	305	282	344	402	350
0	0	0	0	0	0	0	0	0	0	0	0

NEW AUS WITHOUT ST HISTORY

0	0	0	0	0	0	0	0	0	0	0	0
0	0										

NEW RA WITHOUT ST HISTORY

0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
0	0										

PERMANENTLY NONDEPLOYABLE = 328

CAREER ASSIGNABLES= 74

SYSTEM TOTAL FOR GROWTH 6715

Table B-8, Part 1

OUTPUT VECTORS FOR ALL TIME PERIODS

SAMPLE CODE 6

MONTHLY QUOTAS

1963	2242	2521	2800	3079	3361	3362	3363	3364	3365	3366	3367
3367	3367	3367	3367	3367	3367	3367	3367	3367	3367	3367	3367

SHORT TOUR ACTUAL

1963	2242	2521	2800	3005	3069	3362	3363	3364	3365	3366	3367
3367	3367	3367	3367	3367	3367	3367	3367	3367	3367	3367	3367

PERMANENTLY NONDEPLOYABLE

318	319	320	321	322	323	324	325	326	327	328	329
330	331	328	426	529	501	438	404	372	339	327	328

TEMPORARILY NONDEPLOYABLE

1787	1511	1236	1007	828	690	626	576	551	525	499	477
465	457	450	445	441	438	445	452	456	461	463	466

RETURNEES IN BASE WITH LESS THAN 24 MO

2193	2282	2372	2462	2551	2640	2686	2732	2778	2825	2870	2917
3216	3516	3755	3935	4060	4149	4205	4232	4260	4288	4298	4294

RETURNEES COMPLETING SHORT TOUR AND RETURNING TO BASE

139	139	141	140	139	139	154	153	153	153	153	154
413	416	355	392	342	206	442	156	158	159	156	156

REPLACEMENTS NEEDED FOR ST

407	407	408	408	407	485	436	143	144	144	143	143
403	405	423	381	332	195	431	145	146	147	144	145

REPLACEMENTS SENT TO ST

407	407	408	408	333	193	436	143	144	144	143	143
403	405	423	381	332	195	431	145	146	147	144	145

ALREADY IN ST

1556	1835	2113	2392	2672	2876	2926	3220	3220	3221	3223	3224
2964	2962	2944	2986	3035	3172	2936	3222	3221	3220	3223	3222

ASSETSWITH COMPLETED BASE TOUR

1882	1529	1236	1007	828	690	626	594	561	528	499	477
465	457	450	445	441	438	445	452	456	461	463	466

CASUALTIES TO ARMY

2	2	1	2	2	2	2	2	2	2	2	1
2	2	2	2	2	2	1	1	1	1	1	1

Table B-8, Part 2

OUTPUT VECTORS FOR ALL TIME PERIODS

CASUALTIES TO ST											
2	2	2	2	2	3	2	2	3	3	2	2
3	2	2	2	3	2	3	3	2	2	2	3
STUDENT ETS											
0	0	0	0	0	0	0	0	0	0	0	0
0	0	83	0	0	0	0	0	0	0	0	0
MEN FORCED OUT EARLY											
0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	30	322	36	34	35	30	32
CAREER SYSTEM TOTAL											
6343	6359	6375	6392	6408	6425	6441	6458	6474	6491	6507	6524
6540	6557	6573	6590	6606	6623	6639	6657	6674	6692	6696	6693
SYSTEM GRAND TOTAL											
6643	6659	6675	6691	6706	6722	6998	7014	7029	7045	7063	7090
7378	7671	7900	8173	8397	8455	8455	8455	8455	8455	8455	8455
REQUIRED INPUT BY MONTH											
0	0	0	0	0	0	261	0	0	0	3	10
273	277	297	257	209	72	306	19	18	18	14	15
NUMBER OF TRAINEES SCHEDULED TO ENTER SYSTEM											
300	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0
RETURNEES WITH LESS THAN DESIRED BASE TOUR											
0	0	0	0	74	226	0	23	47	53	60	67
335	345	378	337	370	377	114	120	120	124	124	124
AVERAGE BASE TOUR FOR EARLY RETURNEES											
24.000	24.000	24.000	24.000	23.514	22.938	24.000	23.957	24.000	24.000	24.000	24.000
22.842	20.594	18.447	16.392	14.586	12.676	11.965	12.000	12.142	12.306	12.435	12.573
RETURNEES WITH OVER 24 MONTHS IN BASE											
407	407	347	283	232	185	143	120	97	90	83	76
70	59	49	42	37	32	29	26	24	22	21	20

Table B-9

SUMMARY REPORT FOR MANAGEMENT

SAMPLE CODE 6

1.		31DEC67		30JUN68		31DEC68		30JUN69		31DEC69	
2.	REQUIREMENTS										
3.	SHORT TOUR	2658		3361		3367		3367		3367	
4.	BASE STRUCTURE	3920		3997		4006		4006		4006	
5.	TPS IN BASE	964		1080		1082		1082		1082	
6.	TOTAL	7542		8438		8455		8455		8455	
7.			JAN-JUN		JUL-DEC		JAN-JUN		JUL-DEC		
8.	DEPLOYMENT		68		68		69		69		
9.	ROTATION REPLACEMENTS		837		920		2124		1227		
10.	OTHER REPLACEMENTS		974		292		0		0		
11.	CASUALTY REPLACEMENTS		24		25		26		21		
12.	NEW DEPLOYMENT		703		6		0		0		
13.	LESS - EXTENSIONS		-90		-90		-90		-90		
14.	TOTAL		2448		1153		2060		1158		
15.											
16.	ASSETS										
17.	ACTUAL ASSETS			6329		6723		7091		8456	
18.	NEW GROWTH			105		105		105		105	
19.	STUDENT OUTPUT			300		0		0		0	
20.	LESS - STUDENT ETS			-0		-0		-83		-0	
21.	LESS - CASUALTY LOSSES			-11		-11		-12		-6	
22.	TOTAL	6329		6723		6817		7101		8555	
23.	NON-DEPLOYABLES										
24.	IN SHORT TOUR	1684		3069		3093		1982		2977	
25.	RETURNEES LESS THAN 24 MONTHS	2105		2640		2917		4149		4294	
26.	NON-STRUCTURAL PERSONNEL REQ.			1013		806		939		794	
27.	TOTAL			6722		6816		7070		8065	
28.	DEFICIT			-0		-274		-1386		-390	
29.											
30.	RETURNEES FORCED OUT OF MOS			0		0		30		409	
31.											
32.	ALTERNATIVES										
33.	A. NCO SCHOOL OUTPUT			0		274		1386		390	
34.	TRAINORS										
35.	STUDENTS										
36.	B. GRADE SUBSTITUTION	974	(36.7)	292	(8.7)	274	(8.2)	1659	(49.3)	1775	(52.8)
37.	C. RETURNEES LESS THAN 24 MONTHS			300		250		2142		726	
38.	AVG. BASE TOUR OF RETURNEES			23		24		17		12	